REFRIGERATOR

SIDE BY SIDE

BASIC MODEL	MODEL CODE	MODEL NAME
RS25J50**	RS25J5008SP/AP	RS25J5008SP
	RS25J5008SP/EM	RS25J5008SP
	RS25J500DSR/AA	RS25J500DSR
	RS25J500DSR/BY	
	RS25J500DBC/AA	RS25J500DBC
	RS25J500DBC/BY	
	RS25J500DWW/AA	RS25J500DWW
	RS25J500DWW/BY	
	RS25J500DSG/AA	RS25J500DSG

SERVICE GUIDE

REFRIGERATOR

RS25J50****

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WARNING

IMPORTANT SAFETY NOTICE

The service guide is for service men with adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or dealer cannot be responsible for the interpretation of this information.

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Technical Service Guide
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1. PRECAUTIONS(SAFETY WARNINGS)

CAUTION/WARNING SYMBOLS DISPLAYED

Warning	*Indicates that a danger of death or serious injury exists.*
Caution	*Indicates that a risk of personal injury or material damage exists.*

SYMBOLS

	means "Prohibition".
	means "Do not disassemble".
	means "No contact".
	means "The things to be followed".
	means "Power cord should be unplugged from the consent"
	means "Ground to prevent Electric shock".

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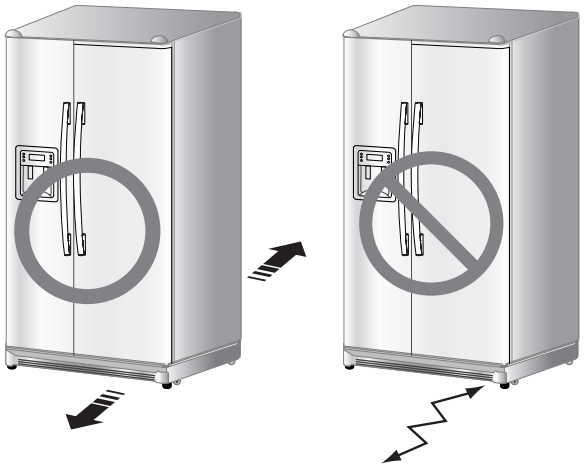
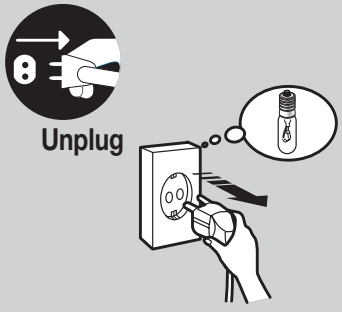
Warning & Caution

CAUTION

When installing, servicing, or cleaning behind the refrigerator, be sure to pull the unit straight out and push back in straight after finishing. Also, make sure your floor supports the full-load refrigerator. Otherwise, it may cause floor damage.



Pull the power plug out before attempting to exchange the interior lamp of the refrigerator.
- *This will prevent danger of electric shock.*



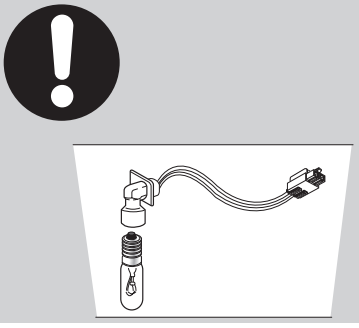
Use only rated components for replacement.
- *Check the correct model, rated voltage, rated current, operating temperature.*

Before repair, make sure that the wires such as harness are bundled tightly.
- *Bundle wires tightly so that they are not detached easily and get wet.*

When repairing, completely remove dust and foreign substances from housing, wiring, joint etc..
- *It may prevents fire due to tracking or short.*

After repair, check the assembled state of components.
- *It must be in the same assembled state as before disassembly.*

Check if there is any trace indicating the permeation of water.
- *If there is that kind of trace, change the related components or do the necessary treatment such as taping using the insulating tape.*



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1. PRECAUTIONS(SAFETY WARNINGS)

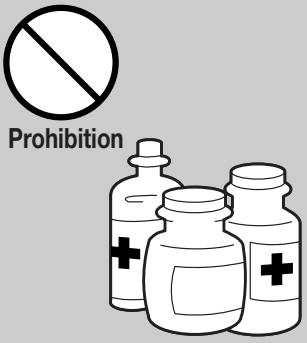
• *Please let users know following warnings & cautions in detail.*

Warning & Caution

Do not allow users to put bottles or kinds of glass in the freezer.
• *F reezing of the contents may inflict a wound.*

Do not allow users to store narrow and lengthy bottles or foods in a small multi-purpose room.
• *It may hurt you when refrigerator door is opened and closed resulting in falling stuff down.*

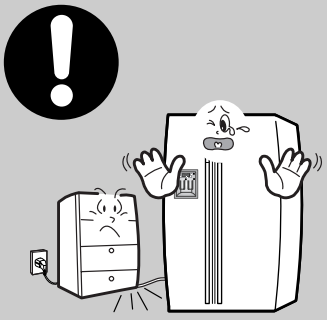
Do not allow users to store pharmaceutical products, scientific materials, etc., in the refrigerator.
• *The products which temperature control should not be stored in the refrigerator.*



Do not allow users to insert the power plugs for many products at the same time.
• *May cause abnormal generation of heat or fire.*

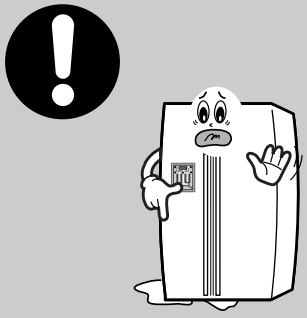
Do not allow users to disassemble, repair or alter.
• *It may cause fire or abnormal operation which leads to injury.*

Do not allow users to bend the power cord with excessive force or do not have the power cord pressed by heavy article.
• *May cause fire.*

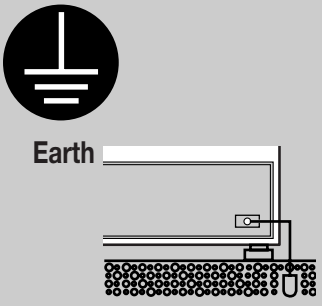


Do not allow users to store articles on the product.
• *Opening or closing the door may cause things to fall down, with may inflict a wound.*

Do not allow users to install the refrigerator in the wet place or the place where water splashes.
• *Deterioration of insulation of electric parts may cause electric shock or fire.*



Make sure of the earth.
• *If earthing is not done, it will cause breakdown and electric shock.*



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2. PRODUCT SPECIFICATIONS

2-1) INTRODUCTION OF MAIN FUNCTION

● Major Feature

	Multi-Flow System • Cool air circulates through multiple vents on every shelf level. This provides even distribution of cooling inside cabinets to keep your food fresh longer.
	Xtra Space™ • Vertical room next to the ice maker in the freezer provides space for pizza etc.

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● A newly developed refrigerator in 2014 has the following characteristics.

Application Part	Newly developed part & feature	Image
Control	Touch	
Lever Dispenser	One Lever	

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2. PRODUCT SPECIFICATIONS

2-2) Specifications

ELECTRICAL SPECIFICATIONS

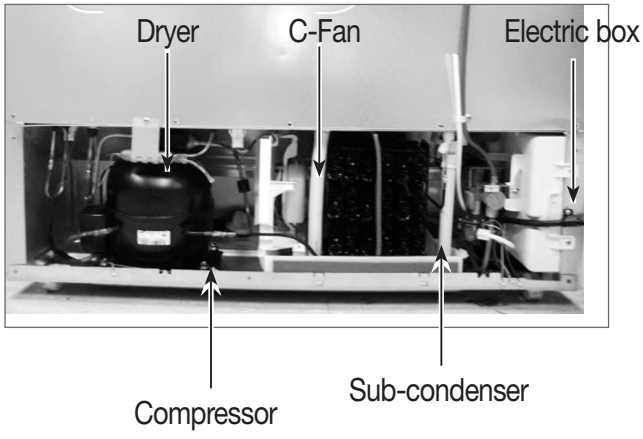
Defrost Control ····· From 16 to 40 hrs
Defrost Thermistor(502AT) ····· 8℃(off)
Electrical Rating H(115V/60Hz) ····· 11.6 Amps
(220V/60Hz)
Maximum Current Leakage ····· 0.25 mA
Maximum Ground Path Resistance 0.1 Ohm
Energy Consumption ····· 580kwh/yr (RS261M)
610kwh/yr (RS26DD)

NO LOAD PERFORMANCE

Ambient Temperature	21℃	32℃
Refrigerator,°C	0~8	0~8
Freezer,°C	-23~-14	-23~-14
Run Time,%	＜40	＜60

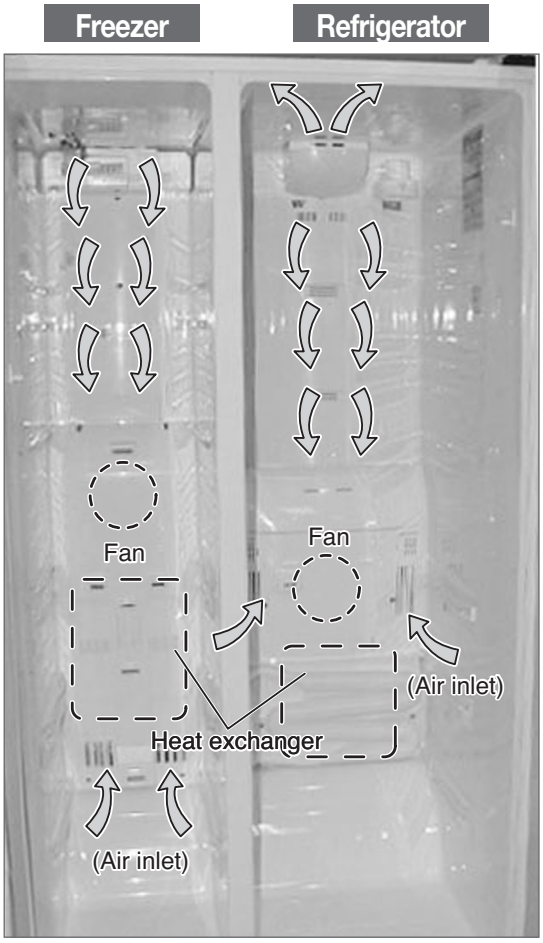
REFRIGERATION SYSTEM

Refrigerant Charge (R134a) ..... 7.41 oz
Compressor ..... 888.9 B tu/hr (RS261M)
1,024 B tu/hr (RS26DD)
Compressor oil ..... Freol α -10
Capillary tube(Dia, Length) ..... 0.033 " ,130 "
Dryer ..... Molecular Sieve XH-9



INSTALLATION

Clearance must be provided for air circulation
AT TOP ..... 2"
AT SIDES ..... 2"
AT REAR ..... 2"



MODELS

RS25H50**

REPLACEMENT PARTS

ASSY PCB MAIN DA92-00625*
ASSY PCB SUB INVERTER DA92-00215R
Thermistor(Freezer) DA32-10109W
Thermistor(Freezer Evaporator) DA41-00006B
Thermistor(Refrigerator) DA41-10109W
Thermistor(Refrigerator Evaporator) DA41-00006D
Thermistor(Ambient) DA32-10109V
Thermistor(Coolselect Zone™) DA32-10109X
Thermistor(Ice-Maker) DA32-10108B
Relay DA35-00103B
DA 35-00008X
DA34-10003S
Run Capacitor (12μF) 2501-001045
Fan-Motor(FRE) DA31-00146E
Fan-Motor(REF) DA31-00146E
Fan-Motor(Condenser) DA31-00146B

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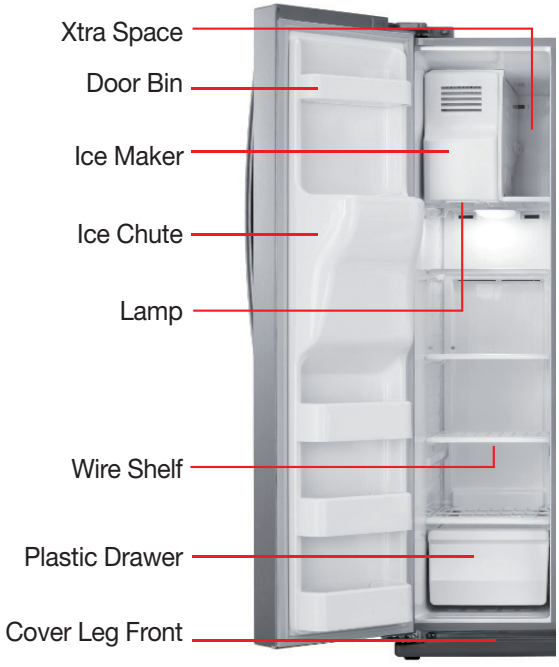
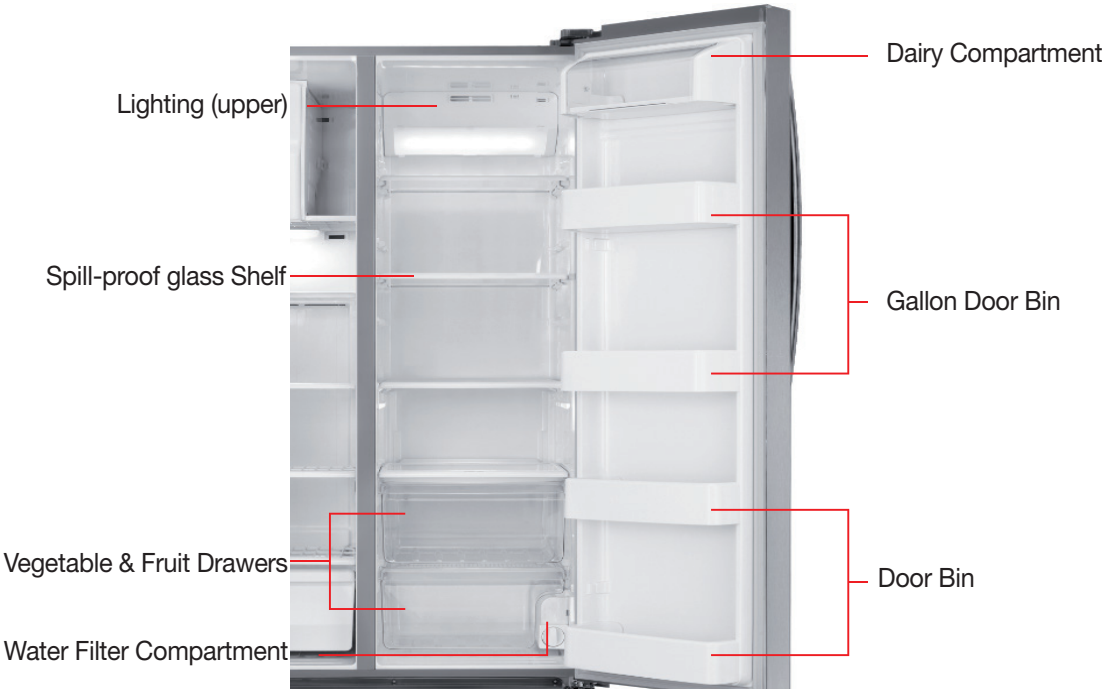
2. PRODUCT SPECIFICATIONS

2-3) INTERIOR VIEWS

Freezer





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2. PRODUCT SPECIFICATIONS

2-4) MODEL SPECIFICATION &COMPARISON CHART

ITEM		Specification	
MODEL		RS25J500****	
		D POWER	G POWER
Net Capacity	TOTAL	25.6 cu.ft	
	Refrigerator	16.21 cu.ft	
	Freezer	9.42 cu.ft	
Net Dimension(W x D x H)		36 1/20 inch x 33 15/16 inch x 69 17/20 inch	
Rated Input Voltage and Frequenc		AC 115~127V / 60 Hz	AC 220~240 V / 50 Hz, 220 V / 60 Hz
Motor Rated Consumption Power		120~140 W	In progress
Electric Heater Rated Consumption Power		287~349 W	In progress
Type of Refrigerator		No Frost cooling Refrigerator	
Refrigerant		R134a	
Refrigerant Input Amount		7.41oz	
Product Weight		277.8 lb	

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2. PRODUCT SPECIFICATIONS

Items				Specification		
Models				RS261MD**	RS26DD **	
				D power	D power	G power
Components for Freezer	Compressor		Model	MK172D-R2U/SM1	MK183C-L2U	MK190G-L2U
			Starting type	R.S.C.R		
			Oil Charge	FREOL α -10		
	Evaporator		Freezer	SPLIT FIN TYPE		
			Refrigerator	SPLIT FIN TYPE		
	Condenser			Forced and natural convection type		
	Dryer			Molecular sieve XH-9		
	Capillary tube(Dia × Length)			0.033 ” × 130 ”		
	Refrigerant			R134a		
Room Temperature Sensor Components	Freezer	Model	Temperature Selection	ON(˚C)	OFF(˚C)	
		THERMISTOR (F-SENSOR) 502AT	bar 7 (-21˚C)	-21˚C	-25˚C	
			bar 4 (-20˚C)	-18˚C	-22 ˚C	
			bar 1 (-14˚C)	-12˚C	-16 ˚C	
	Refrigerator	Model	Temperature Selection	ON(˚C)	OFF(˚C)	
		THERMISTOR (R-SENSOR) 502AT	bar 7 (0˚C)	1˚C	-1˚C	
			bar 4 (2˚C)	3˚C	1˚C	
			bar 1 (8˚C)	9˚C	7˚C	
Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)		6 hr ± 10 min		
		Defrost Cycle(FRE)		6~20 hr(vary according to the conditions used)		
		Pause time		10 ± 2 min		
	Defrost Sensor	F Defrost-Sensor	Model	THERMISTOR (502AT)		
			SPEC	5.0 k ohms at 25˚C (77˚F)		
	Bimetal	Rated		AC 125V / 6A	AC 250V / 3A	
		Operating temperature		Off : 60± 5˚C (104±9˚F) On : 40± 5˚C (104±9˚F)		

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2. PRODUCT SPECIFICATIONS

ITEM			Specification		
MODEL			RS25H50**(North America)	RS25H50**(Global)	
			D power	D power	G power
Electric Components	Defrost Heater(FRE)	Conducting at F Defrosting	AC 120V, 300W	AC 120V, 300W	AC 230V,300W
	DISPENSER Heater	Interlock with F-FAN	AC 120V, 6W	AC 120V, 6W	AC 230V,6W
	WATER PIPE Heater	-	AC120V, 7W	AC120V, 7W	AC230V, 7W
	Damper Heater		DC12V, 1W		
	Thermal Fuse for preventing Overheating of Refrigerator Defrost-Heater		AC120V / 15A 110℃ (230℉)	AC120V / 15A 110℃ (230℉)	AC 250V / 10A 110 °C (230°F)
	Condenser for COMP (Package type)	Running	12μF, 250VAC	12μF, 250VAC	5μF, 450VAC
		Starting	-		
	Starting-Relay	Model	J535Q32E4RMD2	4R7MD2	220MD2
		Operation	4.7Ω	4.7Ω±20%	22Ω±20%
	Over load Relay	Model	4TM445PHBZZ-53	4TM445PHBZZ-53	4TM317RHBYY-53
		Temp. ON	125 ± 5°C (257 ± 9 °F)	125 ± 5°C (257 ± 9°F)	130 ± 5°C (266 ± 9°F)
		Temp. OFF	69 ± 9°C (156 ± 16°F)	69 ± 9°C (156 ± 16°F)	69 ± 9°C (156 ± 16°F)
	Rated Voltage		AC 115~127V / 60Hz	AC 115~127V 60Hz	AC 220~240V/50Hz 220V/60Hz
	MOTOR-BLDC(FRE)		DC 12V/DREP5020LB	DC12V/DREP5020LB	
	MOTOR-BLDC (Circuit)		DC 12V/DRCP5030LA	DC12V/DRCP5030LA	
	Lamp(FRE)		DC 12V (5EA)		
	Lamp(REF)	UPPER	DC12V (6EA)		
	Door Switch		DC200V 0.5A		
	Power cord		AC 125V 10~15A	AC 125V 10~15A	AC 250V 10~16A
	Earth Screw		BSBN (BRASS SCREW)		

1EVAP. (VALUE)

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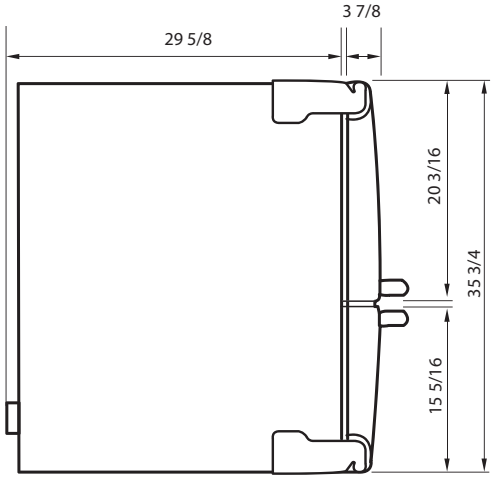
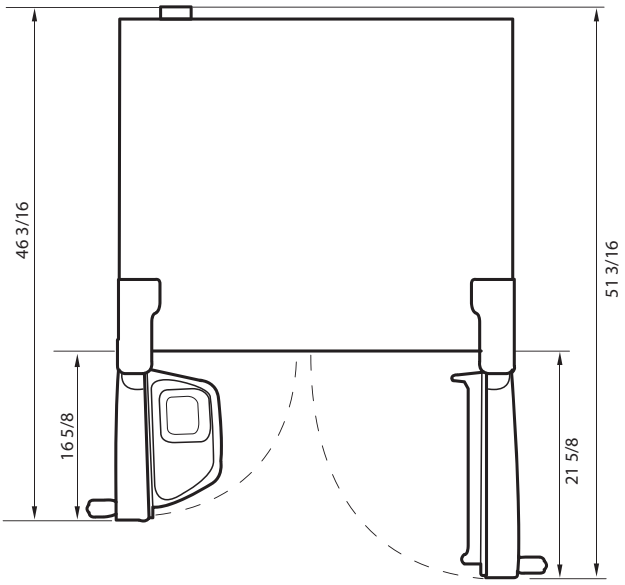
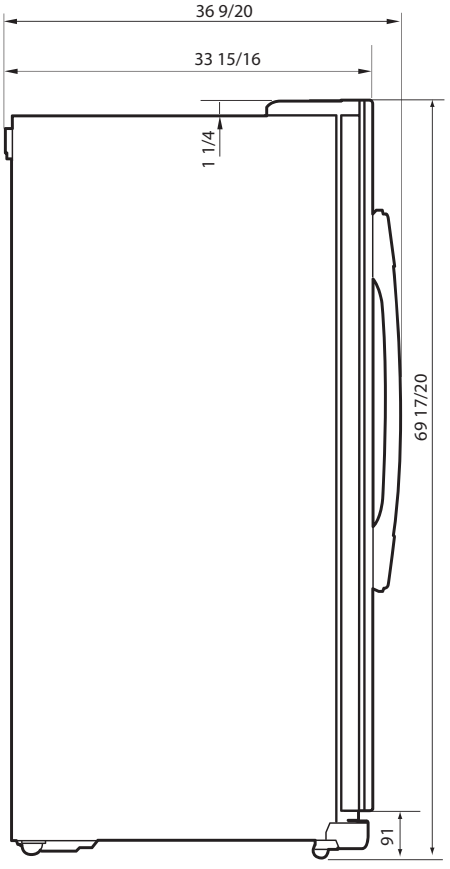
2-5) Dimensions of Refrigerator (Inches)







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2-6) OPTIONAL MATERIAL SPECIFICATION

Photograph	Part Name	Part Code
	ASSY PACKING-SUB (For North America) CLIP-FITTING LOCK BAG PE WRENCH-SPANNER	DA99-03490N DA61-04522A - 2 EA DA69-90113K -1 EA DA80-00002C -1 EA
	ASSY-INSTALL FILTER (For Other Country) SCREW-TAPPPING PIPE-CONNECT WATER PACKING CLAMP LABEL-BAR CODE LABEL-PE BAG BAG ENVELOPE WRENCH-SPANNER ASSY PIPE-WATER **Only Apply for model RS25J5008**	DA97-01469W 6002-000213 - 12 EA DA62-01329A - 1 EA DA65-20110B - 12 EA DA68-00007C - 1 EA DA68-01475B - 1 EA DA69-00484K - 1 EA DA80-00002C - 1 EA DA97-00753D - 1 EA

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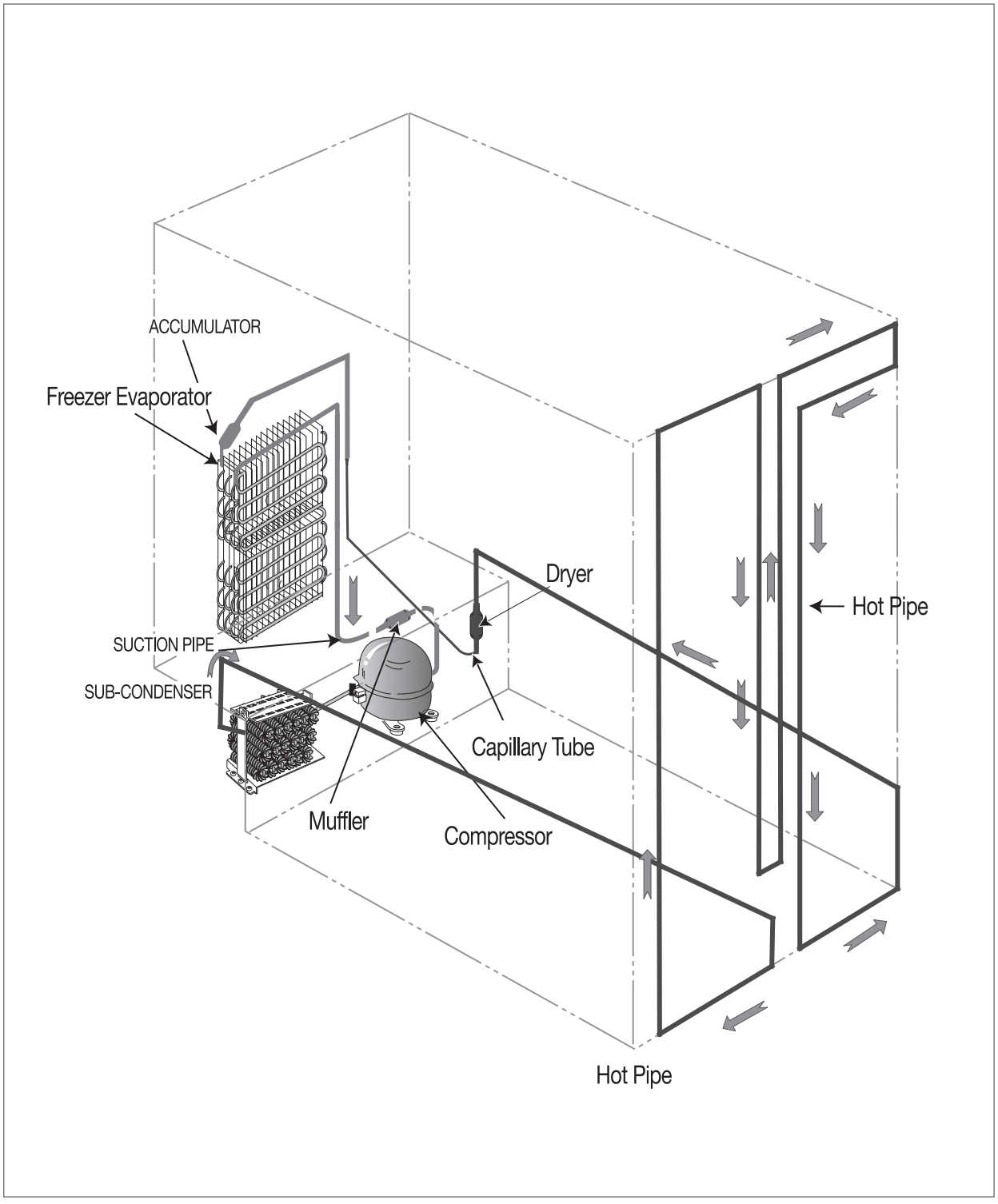
2-7) REFRIGERANT ROUTE IN REFRIGERATION CYCLE

Compressor → Condenser → Hot Pipe → Dryer → Capillary Tube → Evaporator → Suction Pipe → Compressor



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3. DISASSEMBLY AND REASSEMBLY

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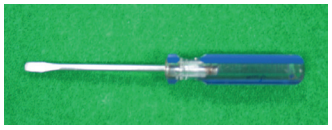
3. DISASSEMBLY AND REASSEMBLY

3-1) CAUTION ON DISASSEMBLY

- When replacing or repairing electric components, unplug power cord before you replace or repair.
  → Be careful of electric shock
- When replacing electric components, use a regular component.
  → Be sure to check the indications like the model number, rating voltage, rating current, operation temperature etc..
- When repairing, the wiring of harness should be free from water infiltration and firm.
  → When applying force, the harness shouldn't be detached.
- When repairing, completely remove dust and foreign substances from housing, wiring, joint etc..
  → Prevents fire due to tracking or short.
- Check if water came into electric components.
  → If there is a sign of water infiltration, replace the component and take necessary action like insulation tapping etc..
- Check the assembly of the component after repairing.
  → Maintain the same status as that before repairing.
- Check the using environment of the refrigerator.
  → If the installation is made unstably or the machine is installed in humid conditions or water, change its location.
- If grounding seems necessary, ground it.
  → If there is risk of short-circuit due to water or humid conditions, be sure to earth.
- Do not plug several devices in one socket.
- Check for breakage, press, scratch, deterioration etc. of power plug and power consent.
  → Immediately repair if the power plug or power consent is defective.
  → When moving the product, be careful not to get scratch or pressed due to surrounding objects.
- Do not store food unstably or do not store bottles in the freezer.
- Do not let consumer repair the machine personally.
- Do not store other materials except food in the refrigerator.
  → Medicine, chemical sample and etc. : Home refrigerator cannot maintain precise temperature.
  → Highly flammable material (alcohol, benzene, ether, LP gas, butane gas etc.) : explosive.

- TOOLS REQUIRED FOR DISASSEMBLY

IMAGE	ITEM
	(+) SCREW DRIVER
	(-) SCREW DRIVER
	(-) SMALL SCREW DRIVER
	SOCKET WRENCH

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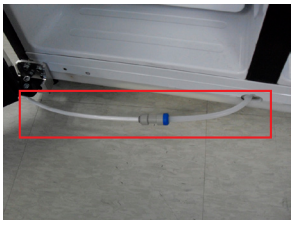
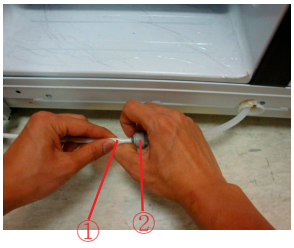
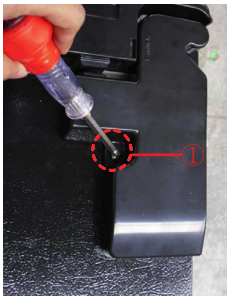
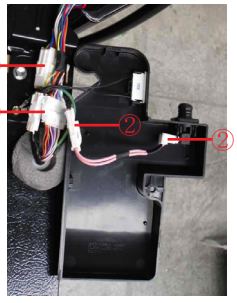
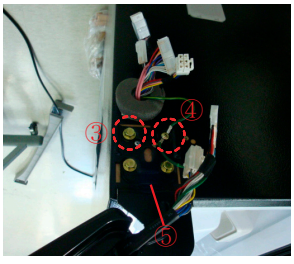
3. DISASSEMBLY AND REASSEMBLY

3-2) Freezer Door

Part name	How To Do	Descriptive Picture
Door Freezer	**Removing the Front leg cover.** 1.Open the freezer and refrigerator doors. 2.Take off the front leg cover by turning the three screw counter-clockwise.	
	Removing the Water supply line. 1.Separate the Water Supply Line from the Refrigerator by pressing the coupler(②) 2.pulling the water tube(①)away. Caution: Be careful not to scratch	 
	Removing the Upper hinge. 1.With the door colsed,remove the upper hinge cover(①)using a screwdriver. 2.Disconnect the wires(②). 3.Remove hinge screws(③)and ground screw(④)counter-clockwise and take off the upper hinge(⑤)along the arrow. Caution: When diassembling, make sure the unit is turned off	  

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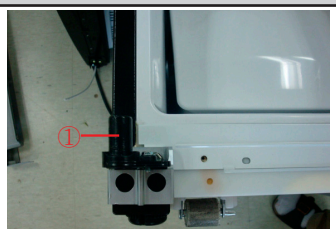
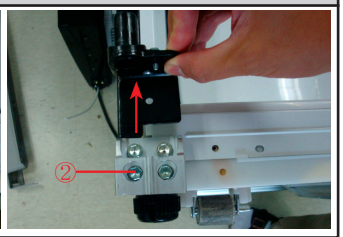
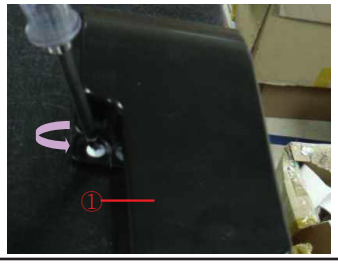
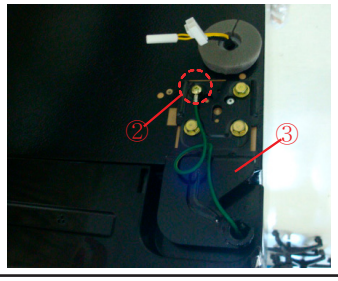
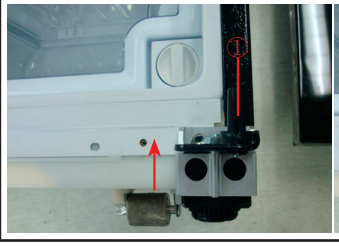
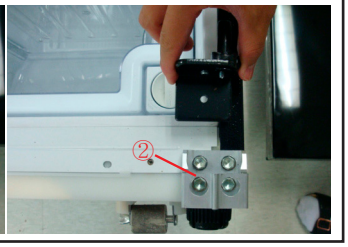
3. DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
Door Fre	**Removing the Lower hinge.** 1.Remove the door from the lower hinge(①)by carefully lifting the door. 2.Remove the lower hinge from the bracket hinge(②)by lifting the lower hinge in the direction of the arrow.	 

3-3) REFRIGERATOR DOOR

Part name	How To Do	Descriptive Picture
Door Ref	**Removing the Upper hinge.** 1.With the door colsed,remove the upper hinge cover(①)using a screwdriver.	
	2.Remove hinge . ground screw(②) and take off the upper hinge(③)along the arrow. Be careful not to scratch Caution	
	Removing the Lower hinge. 1.Remove the door from the lower hinge(①)by carefully lifting the door. 2.Remove the lower hinge from the bracket hinge(②)by lifting the lower hinge in the direction of the arrow.	 

NOTE

- Lift the door straight up.
- Be careful not to pinch the water tubing and wire harness on the door.
- Place doors on a protected surface.
- After disassembling the freezer / refrigerator door, move it to the appropriate location.

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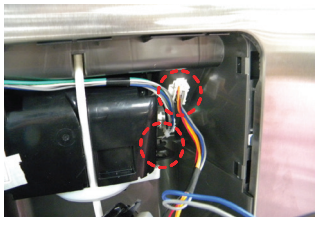
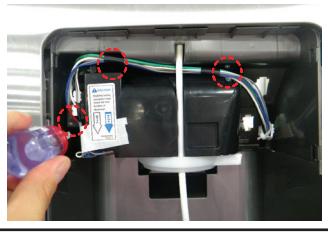
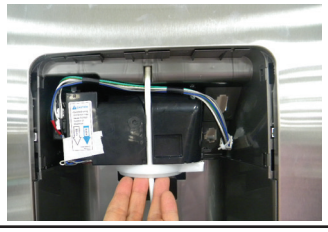
3-4) CONTROL PANEL

Part name	How To Do	Descriptive Picture
Control Panel	Turn off he Refrigerator Power Cord.	
	Disassemble one screw with plus driver as shown in the picture.	
	Pull out to the front to disassemble ASSY COVER DISPENSER as shown in the picture.	
	Disassemble two remarked sites of housing.	
	Disassemble three remarked screws with plus driver.	
	Pull out ASSY CASE ICE ROUTE for disassembly.	

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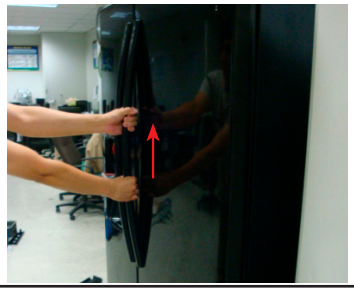
3. DISASSEMBLY AND REASSEMBLY

3-5) DOOR GASKET

Part name	How To Do	Descriptive Picture
Door Gasket	**The door gasket is a molded gasket set into a channel located in the door liner.** 1.Open the door 2.Grasp the gasket and pull in an outward motion until the molded gasket separates from the door liner.	

3-6) DOOR HANDLE

Part name	How To Do	Descriptive Picture
Door Handle	**Lift the handle upward motion with on.**	

3-7) TEMPERED GLASS SHELF

Part name	How To Do	Descriptive Picture
Tempered Glass Shelf	**These shelves allow storage of larger items and pull out for easy access.** 1. Pull the shelf out as far as it goes. 2. Lift it up and remove it. Caution: Be careful of injury	

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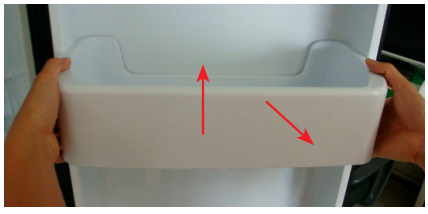
3. DISASSEMBLY AND REASSEMBLY

3-8) PLASTIC DRAWERS IN REFRIGERATOR

Part name	How To Do	Descriptive Picture
Drawer In Refrigerator	**Drawers are designed for storage of fruits, vegetables, and deli items, The drawers are located in the lower portion of the refrigerator.** 1. Pull out the drawer as far as it goes. 2. Tilt the drawer up and pull it out until it is removed.	

3-9) GALLON DOOR BIN

Part name	How To Do	Descriptive Picture
Gallon Door Bin	**The door bins allow storage of perishable items.** 1. Push the bin up and slide it out.	

3-10) WATER FILTER

Part name	How To Do	Descriptive Picture
Water Filter	**Please replace the water filter located on the bottom right by turning it in anti-clockwise direction.**	

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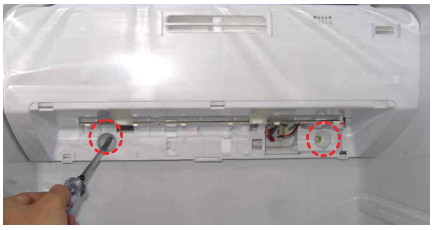
3-11) EVAPORATOR COVER IN THE REFRIGERATOR

Part name	How To Do	Descriptive Picture
	Pull out the screw cap and remove the screw.	
	Disconnect the wire connector.	
	Remove the screw.	
	Remove the cover damper in the direction of arrow.	

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3-12) DOOR BIN IN FREEZER

Part name	How To Do	Descriptive Picture
Door Bin In Freezer	The door bins allow storage of perishable items.	

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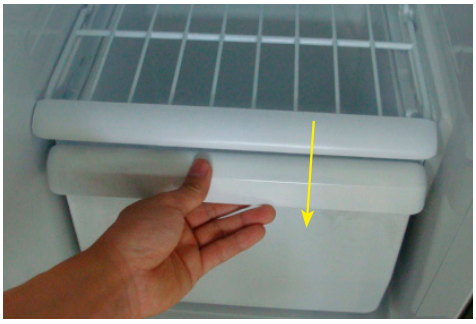
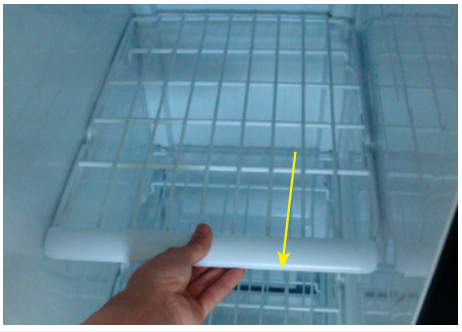
3-13) PLASTIC DRAWER IN FREEZER

Part name	How To Do	Descriptive Picture
Drawer In Freezer	**Drawers are designed for storage of meat and dry foods. The drawers are located in the lower portion of the freezer.** 1. Pull out the drawer as far as it goes. 2. Tilt the drawer up and pull it out until it is removed.	

3-14) FREEZER SHELF

Part name	Descriptive Picture	Descriptive Picture
Freezer Shelf	**The shelves slide out for easy access for frozen items.** 1. Slide the shelf out as far as you can. 2. Tilt down and slide it out of the compartment.	

3-15) ICE DISPENSER & ICE MAKER

Part name	How To Do	Descriptive Picture
Ice Dispenser & Ice Maker	**The ice dispenser is located in the upper portion of the freezer. This assembly stores ice made by the icemaker and dispenses ice.** 1. Lift the ice bucket up ① and slide out the ice dispenser assembly ②.	

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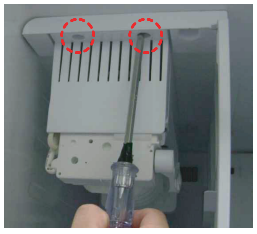
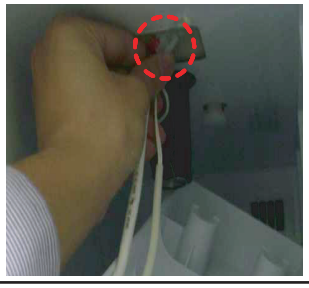
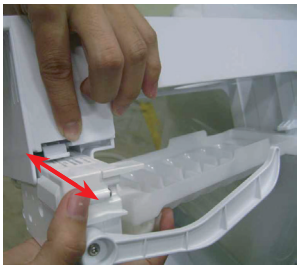
3. DISASSEMBLY AND REASSEMBLY

3-16) ICE MAKER KIT

Part name		Descriptive Picture
Ice Maker Kit	**1. Remove the screws.**	
	2. Disconnect the ice maker wire connector.	
	3. Unlock the locking tabs to separate the ice maker kit.	

3-17) AUGER MOTOR CASE

Part name	How To Do	Descriptive Picture
Auger Motor Case	**This shelf is designed to support the ice maker & ice dispensed and Xtra Space™.** 1. Remove the Xtra Space™ cover (push it down and pull front). 2. Slide the partition out. 3. Remove the screws (2) on the bottom front of the case. 4. Slide out the case while disconnecting the wire connect.	

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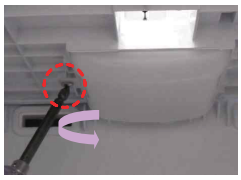
3. DISASSEMBLY AND REASSEMBLY

3-18) FREEZER Lighting

Part name	How To Do	Descriptive Picture
Freezer Lighting	**The freezer Lighting is located in the bottom of the auger motor case. The Lighting is covered by an opaque cover.** 1. Remove the screw and the Lighting cover.	

3-19) EVAPORATOR COVER IN FREEZER

Part name	How To Do	Descriptive Picture
Evaporator Cover In Freezer	**1. Pull out the screw caps and remove screws (6).** **2. Remove the evaporator cover in the direction of outwards.**	

3-20 UPPER DUCT

Part name	Descriptive Picture	Descriptive Picture
Upper Duct	**1. Remove the screws.** **2. Remove the cover-evap front.**	

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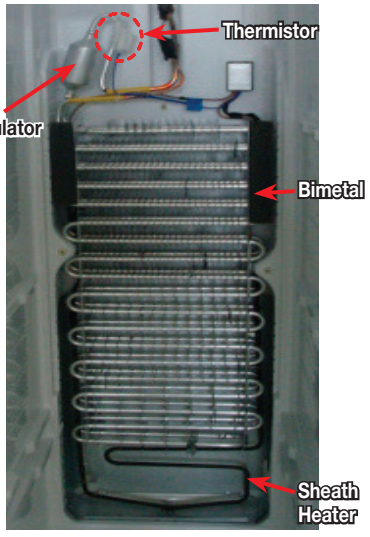
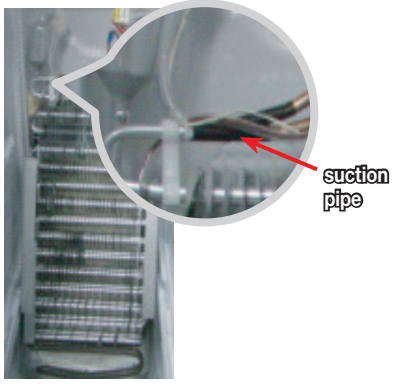
3. DISASSEMBLY AND REASSEMBLY

3-21) EVAPORATOR FAN MOTOR IN FREEZER

	How To Do	Descriptive Picture
Evaporator Fan motor in freezer	**The evaporator fan is located in the lower rear of freezer. This fan circulates cold air in the freezer.** 1. Remove screws(4) located at the four corners of the fan bracket. 2. Take the fan motor assembly off.	

3-22) EVAPORATOR IN FREEZER

Part name	How To Do	Descriptive Picture
Evaporator In Freezer	**Evaporator is located in the bottom of freezer to produce cold air driven across the evaporator coils.** 1. Take off the ductwork in Freezer. 2. Disconnect the wire connector (Heater, Bimental, and Thermistor). 3. Desolder the inlet and outlet tubes. 5. Remove the evaporator. 4. Bend the suction pipe. 6. Take the same steps to seal the system as mentioned earlier. Caution When diassembling, make sure the unit is turned off	 * Reference (How To Do #4) 

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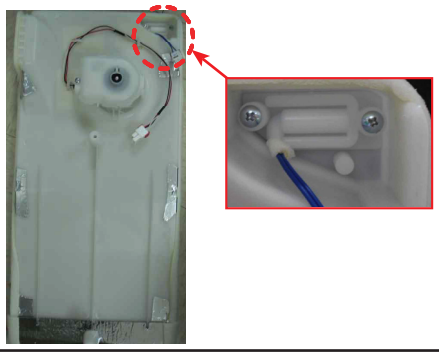
3. DISASSEMBLY AND REASSEMBLY

3-23) FREEZER THERMISTOR

Part name	How To Do	Descriptive Picture
Freezer Thermistor	The freezer thermistor is located at the top left of freezer vent. It sends temperature signals to the micro-processor.	

3-24) AMBIENT THERMISTOR

Part name	How To Do	Descriptive Picture
Ambient Thermistor	The ambient thermistor is located inside the upper hinge cover. The ambient thermistor sends temperature signals to the micro-prosessor.	

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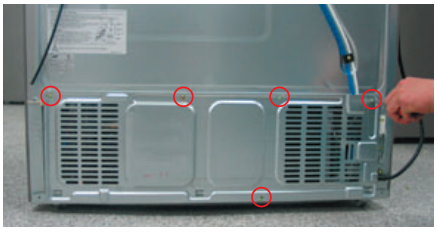
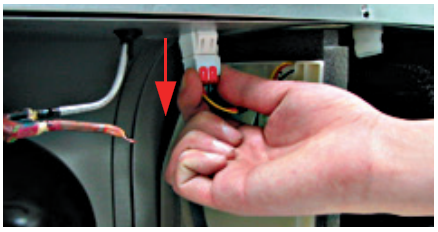
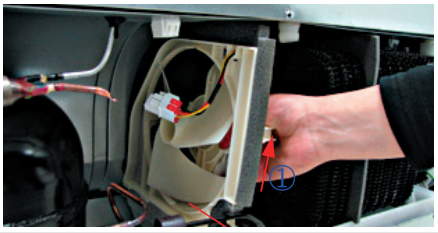
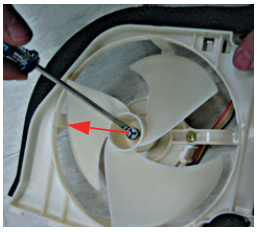
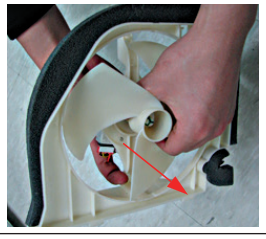
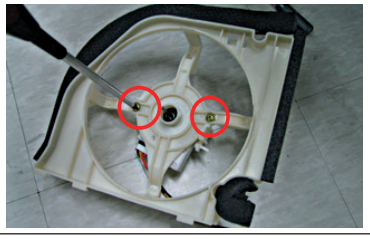
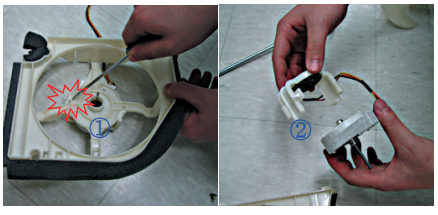
3. DISASSEMBLY AND REASSEMBLY

3-25) MACHINE COMPARTMENT

Part name	How To Do	Descriptive Picture
Motor Fan	1. Unscrew 5 screws of cover compressor.	
	2. Disengage the housing connector. (Refer to the picture)	
	3. Remove the hooker of support circuit motor by lifting the hooker up and pulling it out.	
	4. Remove the spring with a flatblade screwdriver. (Refer to the picture)	
	5. Remove the motor fan by pulling the fan out while grasping the motor part. (Refer to the picture)	
	6. Unscrew 2 screws fixed in the motor.	
	7. Remove the hook of the motor cover with a flat-blade (-) screwdriver and then remove the motor.	

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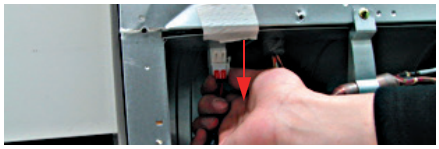
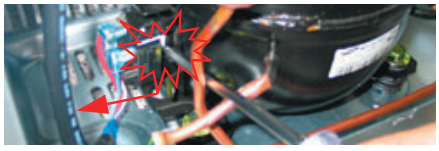
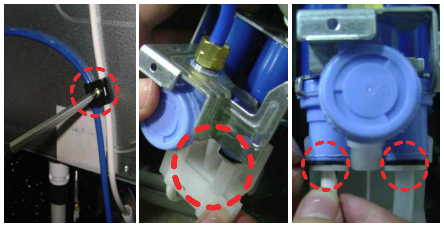
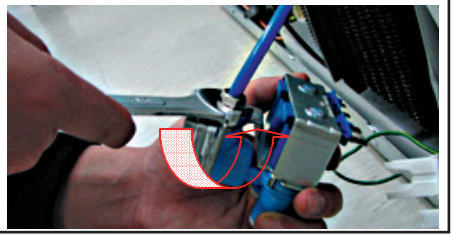
3. DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
Relay O/L	1. Disengage the housing connector.	
	2.Remove Cover Relay.	
	3. Remove the relay O/L with a flat-blade screwdriver. (Refer to the picture)	
Water Valve	1. Unscrew the water valve fixed by the screw.	
	2. Disassemble the white part. Pull out the black pin.	
	3. Remove 2 water hose parts while pushing the upper part of. (Refer to the picture)	
	4. Disengage 2 housing connector parts.	
	5. Remove the hose connected by the nut with a wrench(8mm).	

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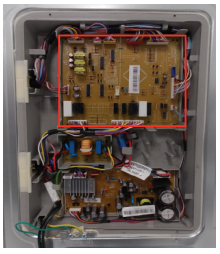
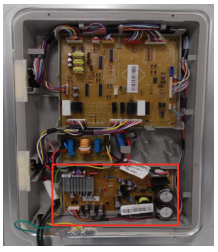
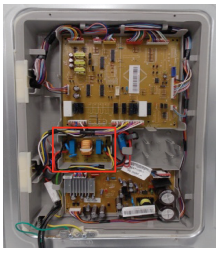
3–26) ASSY PBA

Part name	How To Do	Descriptive Picture
ASSY PCB MAIN	Remove 4 Screws.	
	Remove the ASSY PCB MAIN	
ASSY PCB SUB INVERTER	Remove the ASSY PCB SUB INVERTER	
COIL FILTER-EMI	Remove the COIL FILTER-EMI	

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4. TROUBLESHOOTING

4-1) Forced Operation Function (Pull-down / Freezer-Defrost / Cancellation)

- This function enables a compressor mode, a defrost mode for the refrigerator only, a defrost mode for the freezer, and cancellation of these functions.
- Press Freezer and Water Key buttons simultaneously for 8 seconds to get in the ready mode for a forced operation. (The below picture)
- The display panel will return to normal after 15 seconds in the ready mode.
- In the ready mode, press any buttion once to start a compressor on operation, twice for defrost cycle for the freezer, and finally three times for cancellation of this function
- Another way to cancel this function is to simply plug out the power cord and plug it back in.

Press both button for 8 seconds at the same time

1) Compressor on (Pull Down) mode

1-1) In the ready mode, pr ess any button once - then the buzzer will beep (ON for 1/2 second and OFF for 1/2 second) until this mode is cancelled.

1-2) In this compressor on mode, the compr essor will start immediately (No 7 minute delay) and if the system is in the defrost cycle, it will be cancelled right away.

NOTE) If this pull-down mode begins right after the compressor turns off, the compressor may not start to run due to an overload condition.

1-3) In this mode, the compressor and freezer fan will operate continuously for 24 hours and the refrigerator fan will turn on and off according to the set temperature high.

1-4) After 24 hour operation, the system will be cycled at high for the freezer and high for the refrigerator.

2) Freezer-Defrost operation

2-1) In the ready mode, pr ess any button twice to begin the defrost cycle for the Freezer-Defrost.

2-2) The beep sound continues for 3 second at the beginning, then ON for 3/4 seconds and OFF for 1/4 second until this mode ceases.

2-3) After this operation, the system will come back to normal operation.

3) Cancellation

3-1) In the F-Defrost mode, press any button again to return to a normal operation.

3-2) Or, simply unplug the power cord, then plug it again to return to a normal operation.

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4-2) Sound function

1) Sound function

1-1) To confirm that a command is inputted properly, whenever a button is pressed, a "ding-dong" sound is produced.

1-2) When two or more buttons are pr essed simultaneously or if a wrong button is pressed, there is no sound.

2) Door Open Alarm

2-1) When the doors remain open for 2 minutes, 10 beeps are produced.

2-2) If the doors continue to remain open more than 2 minutes, 10 beeps ar e produced every 1 minute.

2-3) The beeps will cease immediately when the doors are closed.

4-3) Communication Error Display Function

1) Communication Error between MAIN MICOM and Panel MICOM

1-1) When there is no response in 10 seconds after the Main MICOM sends a communication signal to the Panel MICOM, all LED will blink on the Display Panel until the communication error is released.

4-4) Cooling Off Function

This function is for display purpose on the floor of a show room or a store.

1) Mode ON/OFF

1-1) To select for the Cooling Off mode, press Frezeer, Fridge and Ice buttons simultaneously for 5 seconds until a "ding-dong" sound is heard.

1-2) To cancel this mode, press the same buttons again for 5 seconds until a "ding-dong" sound is heard.

2) Operation

2-1) Most of the system function except the compressor operation are working properly.

2-2) There is no defrost cycle in this mode.

2-3) Temperature indicator moving.

2-4) Cooling Off mode is not cleared even if power is reset.

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4-5) Self-Diagnostics Function

1) Self-Diagnostics during the initial Power ON

1-1) The control boar d performs a self diagnostics test within 1 second and checks out the temperature sensors abilities.

1-2) If a sensor failure occurs, a corresponding LED segment will blink with a beep.

1-3) When a LED segment blinks, only the cancellation function (Press Freezer and Fridge buttons simultaneously for 8 seconds) is acceptable.

1-4) After replacement of bad sensor or cancellation of this function, this self diagnostics will end.

2) Self-Diagnostics during the normal operation

2-1) To select this function, press Freezer and Fridge buttons simultaneously for 8 seconds with an audible tone.

2-2) In the self diagnostic mode, only corresponding LED segments will be illuminated (see the check list on the next page)

2-3) After a 30 second illumination of error signal, the system will return to the normal operation.

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4. TROUBLESHOOTING

Press both buttons simultanequsly for 8 seconds

If any LEDs blink, the corresponding sensors and components must be checked for an error.

✻ Self-diagnostics check list

NO	Error	LED Display
①	ICE MAKER SENSOR	Right - ① LED ON
②	MAIN ⊠ PANEL COMMUNICATION ERROR	Right - ② LED ON
③	COMP ERROR	Right - ③ LED ON
④	REFRIGERATOR SENSOR	Right - ④ LED ON
⑤	Damper Heater Error	Right - ⑤ LED ON
⑥	ICE MAKER FUNCTION ERROR	Right - ⑦ LED ON
⑦	EXIT-SENSOR	Left - ① LED ON
⑧	FREEZER SENSOR	Left - ② LED ON
⑨	FREEZER DEFROST SENSOR	Left - ③ LED ON
⑩	FREEZER FAN ERROR	Left - ④ LED ON
⑪	CONDENSER FAN ERROR	Left - ⑤ LED ON
⑫	FREEZER DEFROST ERROR	Left - ⑦ LED ON

Error items of self-diagnostics

NO	Error items	Details	How to Self-Diagnose
01	ICE MAKER SENSOR	Ice Maker sensor connector missing; contact failure, electric wire cut, shortcircuit; Ice Maker sensor failure; and so on	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN90 #3 and #8
02	MAIN ⊠ PANEL COMMUNICATION ERROR	Blinking all panel icon with alarm. Communication Error between main micom and panel micom	It needs a Oscilloscope to do the error check. So, it is more realistic ch ecking the error after replaci ng Main or Panel PCB.
03	Compressor Error	When the Compressor fails starting	1. it will stop blinking after a while short(U,V,W) 2. Check IPM Pins short of Inverter PBA(No. #1 ~ 26) 3. Check IPM operating Voltage(under DC 13.5V) 4. Other cases check the COMP cycle etc
		When there is a IPM Fault error	
		When there is abnormal crrunt detected at the Compressor	1. Check COMP wire connections(U,V,W) 2. Check PCB Bottom side solder(R1) 3. Other cases check the COMP cycle etx
		When there is a Compressor restriction error	1. Check COMP wire connections(U,V,W) 2. Check PCB Bottom side solder(R1) 3. Other cases check the COMP cycle etx
		When there is a low voltage error	1. Check input voltage under AC 53V(if input Power is AC110~127V) or AC 106V(if input Power is AC 220~240V) 2. Short resistor R312(DC link resistor)
		When there is a over voltage error	The voltage should be 7V~12V between MAIN PCB CN75 #3(ORANGE) and #10(GRAY).
04	REFRIGERATOR SENSOR	Refrigerator sensor connector missing ; contact failure, electric wire cut, short-circuit ; Refrigeratorsensor itself failure; and so on	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #5 and #7
05	Damper Heater Error	Damper Heater is sensed as open error due to Connector Slipped-Out or Open-Contact, Wire Cut.	Disconnect MAIN PCB CN76 from PCB, and read the resistance between Black and Brown wire terrninals (Refer to the Wire Diagrarn for the resistance value). 0 Ohm ∞ Heater Short Ohm ⊠ Wire Cut or Slipped-out Terrninal.
06	ICE MAKER function ERROR	Ice-ejector and level failed three times or more	Push the test button on an I/M Ass'y and It should work.
07	Ambient Air SENSOR	Air sensor connector missing ; contact failure, electric wire cut, short-circuit; open air sensor itself failure; and so on	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #1 and #2
08	FREEZER SENSOR	Freezer sensor connector missing ; contact failed, electric wire cut, shortcircuit ; Freezer Room sensor itself failure	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #3 and #7
09	FREEZER DEFROST SENSOR	Freezer evaporator defrosting sensor connector missing; contact failed, electric wire cut, shortcircuit ; sensor itself failure ; and so on	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #4 and #7
10	FREEZER FAN ERROR	Freezer Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing; and so on.	The voltage should be 7V~12V between MAIN PCB CN75 #1(GRAY) and #4(YELLOW).
11	CONDENSER FAN ERROR	Condenser Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing; and so on.	The voltage should be 7V~12V between MAIN PCB CN75 #1(GRAY) and #2(SKY BLUE).
12	FREEZER DEFROST ERROR	In the freezer room, if frost removal mode is finished due to limited time of 70 minutes. Error is displayed	After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 Brown ⊠ Black(refer to the Circuit Diagram for the resistance value) When it is 0 Ohm, check if the Heater is short and when it is Ohm, check if the wire or the thermal fuse is open.

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4-6) Load Operation Check Function

1) In the normal operation, press Freezer and Fridge buttons simultaneously for 6 seconds.
2) Press Water button ⓐ when the display blink.
3) Each illuminating LED segment stands for the component which has an ouput signal from the control board.
4) This mode will terminate automatically after 30 seconds.

Press both buttons simultaneously for 6 seconds,
When the display blink, At this time
press button ⓐ.

＊ Self-diagnostics check list

NO	Error	LED Display
①	Damper	Right - ① LED ON
②	Overload mode	Right - ⑤ LED ON
③	Low-temperature mode	Right - ⑥ LED ON
④	Exhibition mode	Right - ⑦ LED ON
⑤	COMPRESSOR	Left - ① LED ON
⑥	FREEZER Fan highest	Left - ②,③ LED ON
⑦	FREEZER Fan high	Left - ② LED ON
⑧	FREEZER Fan low	Left - ③ LED ON
⑨	FREEZER DEFROST heater	Left - ④ LED ON
⑩	CONDENSER Fan high	Left - ⑤ LED ON
⑪	CONDENSER Fan low	Left - ⑥ LED ON
⑫	Dispenser-heater	Left - ⑦ LED ON
⑬	FULL ICE	Ice Off LED ON
–	Normal condition	Right - ⑤,⑥ LED ON LED All Off

※ The FREEZER FAN and CONDENSER FAN are operated to Highest/High/Low rpm automatically according to the operational condition.
※ ② and ③ only explain the system operation state according to the ambient condition

4-7) Restoration Function for Power Outage

1) When the freezer temperatur e is lower than 50 ℉(10℃), all on the display panel will be restored.
2) When the freezer temperatur e is higher than 50 ℉(10℃), all functions will be initialized. (Level 4(-20 ℃) for the freezer, (Level 4(3 ℃) for the refrigerator, and cubed for the ice type Energy Saver on corresponding models'

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4-8) Table of Set Point Shift Function

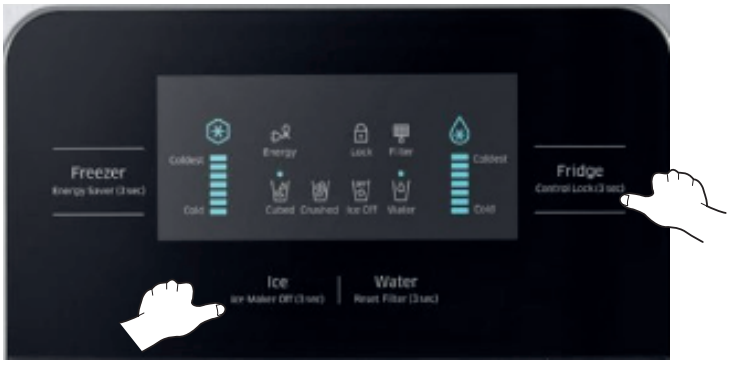
< Reference Bar Display Binary Table>

LED \ CODE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Display On	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Display On	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Display On	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	O
Display On	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	X	X	X
Display On	X	X	X	X	O	O	O	O	X	X	X	X	O	O	O	O	X	X	X
Display On	X	X	O	O	X	X	O	O	X	X	O	O	X	X	O	O	X	X	O
Display On	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X
LED \ CODE	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Display On	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Display On	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	O	O	O	
Display On	O	O	O	O	O	O	O	O	O	O	O	O	O	X	X	X	X	X	
Display On	X	X	X	X	O	O	O	O	O	O	O	O	O	X	X	X	X	X	
Display On	X	O	O	O	O	X	X	X	X	O	O	O	O	X	X	X	X	O	
Display On	O	X	X	O	O	X	X	O	O	X	X	O	O	X	X	O	O	X	
Display On	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	

4-9) Set Point Shift Function

- Press Ice and Fridge buttons simultaneously for 12 seconds to get into this mode.
- In this mode, only the display LEDs for temperature will be ON.

Press both buttons simultanequsly for 12 seconds



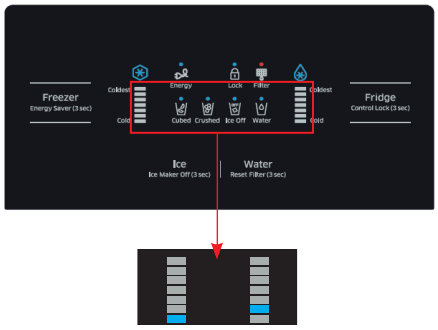
1) Initially, the code is set to “0”.
2) After 20 seconds from adjustment, a new setting will be stored in EEPROM and display will return to normal.
3) Freezer Temp, Fridge Temp, Ice maker water supply, Ice tray temperature, Display Settings, Dispenser Heater Operation, can be adjusted with this function.

■ The following options are limited to a model with the Ice Maker.

3) Ice maker supply water amount (Limited to a model with flow sensor)

Right LED Value	2

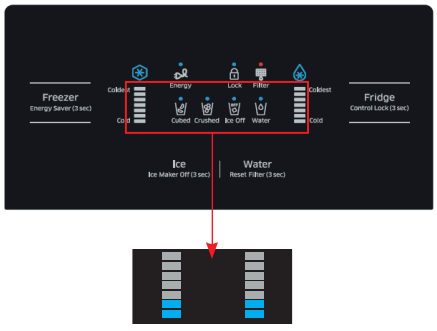
Code(LEFT)	Water amount
0	94 cc
1	104 cc
2	
3	
4	
5	
6	
7	



4) Ice maker Dropping ice standby time.

Right LED Value	3

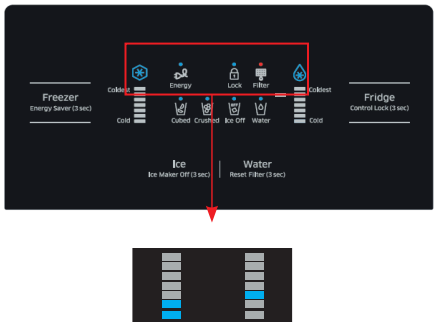
Code (LEFT)	Time Set (Minutes)	Code (LEFT)	Time Set (Minutes)
0	58	8	50
1	57	9	49
2	58	10	48
3	55	11	47
4	54	12	46
5	53	13	45
6	52	14	59
7	51	15	60



5) Shift the Ice maker temperature sensor

Right LED Value	4

Code (LEFT)	Time Set (Minutes)
0	1.4 ℉ (-17 ℃)
1	3.2 ℉ (-16 ℃)
2	5 ℉ (-15 ℃)
3	6.8 ℉ (-14 ℃)
4	8.6 ℉ (-13 ℃)
5	10.4 ℉ (-12 ℃)
6	-0.4 ℉ (-18 ℃)
7	-2.2 ℉ (-19 ℃)



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4. TROUBLESHOOTING

1) Shift the freezer temperature sensor

Right LED Value	0

Code	Temp. shift	Code	Temp. shift
0	0	8	+1°F (+0.5 ℃)
1	-1°F (-0.5 ℃)	9	+2°F (+1.0 ℃)
2	-2°F (-1.0 ℃)	10	+3°F (+1.5 ℃)
3	-3°F (-1.5 ℃)	11	+4°F (+2.0 ℃)
4	-4°F (-2.0 ℃)	12	+5°F (+2.5 ℃)
5	-5°F (-2.5 ℃)	13	+6°F (+3.0 ℃)
6	-6°F (-3.0 ℃)	14	+7°F (+3.5 ℃)
7	-7°F (-3.5 ℃)	15	+8°F (+4.0 ℃)

Example) If you are lowering the current temperature of the freezer by -6 °F (-3 ℃)

2) Shift the refrigerator temperature sensor

Right LED Value	1

Code	Temp. shift	Code	Temp. shift
0	0	8	+1°F (+0.5 ℃)
1	-1°F (-0.5 ℃)	9	+2°F (+1.0 ℃)
2	-2°F (-1.0 ℃)	10	+3°F (+1.5 ℃)
3	-3°F (-1.5 ℃)	11	+4°F (+2.0 ℃)
4	-4°F (-2.0 ℃)	12	+5°F (+2.5 ℃)
5	-5°F (-2.5 ℃)	13	+6°F (+3.0 ℃)
6	-6°F (-3.0 ℃)	14	+7°F (+3.5 ℃)
7	-7°F (-3.5 ℃)	15	+8°F (+4.0 ℃)

Example) If you are raising the current temperature of the refrigerator by +3°F (+1.5 ℃)

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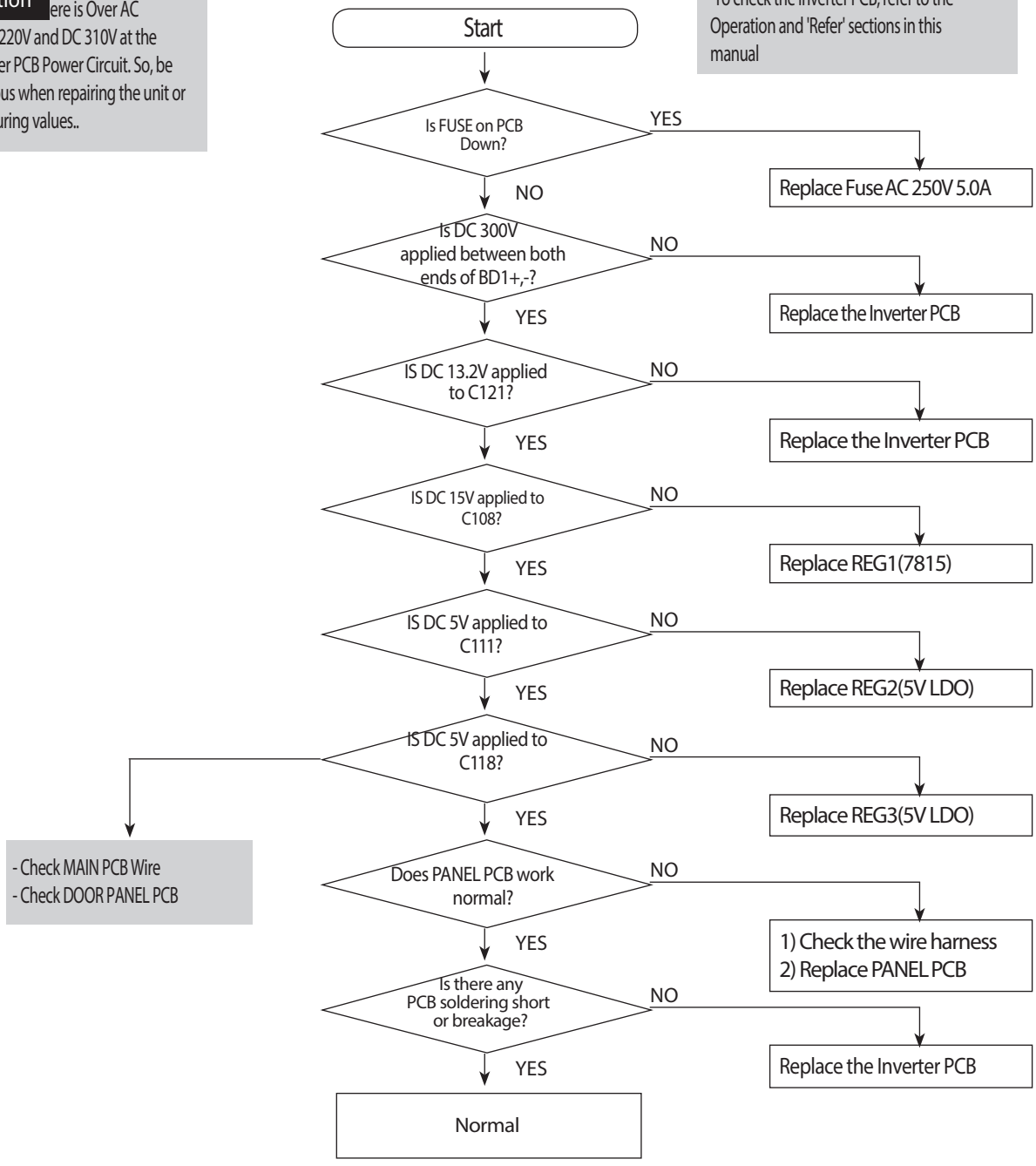
4-10) When there is no power at Inverter PCB or Main PCB

Caution ere is Over AC 115V/220V and DC 310V at the Inverter PCB Power Circuit. So, be cautious when repairing the unit or measuring values..

- To check the Inverter PCB, refer to the Operation and 'Refer' sections in this manual



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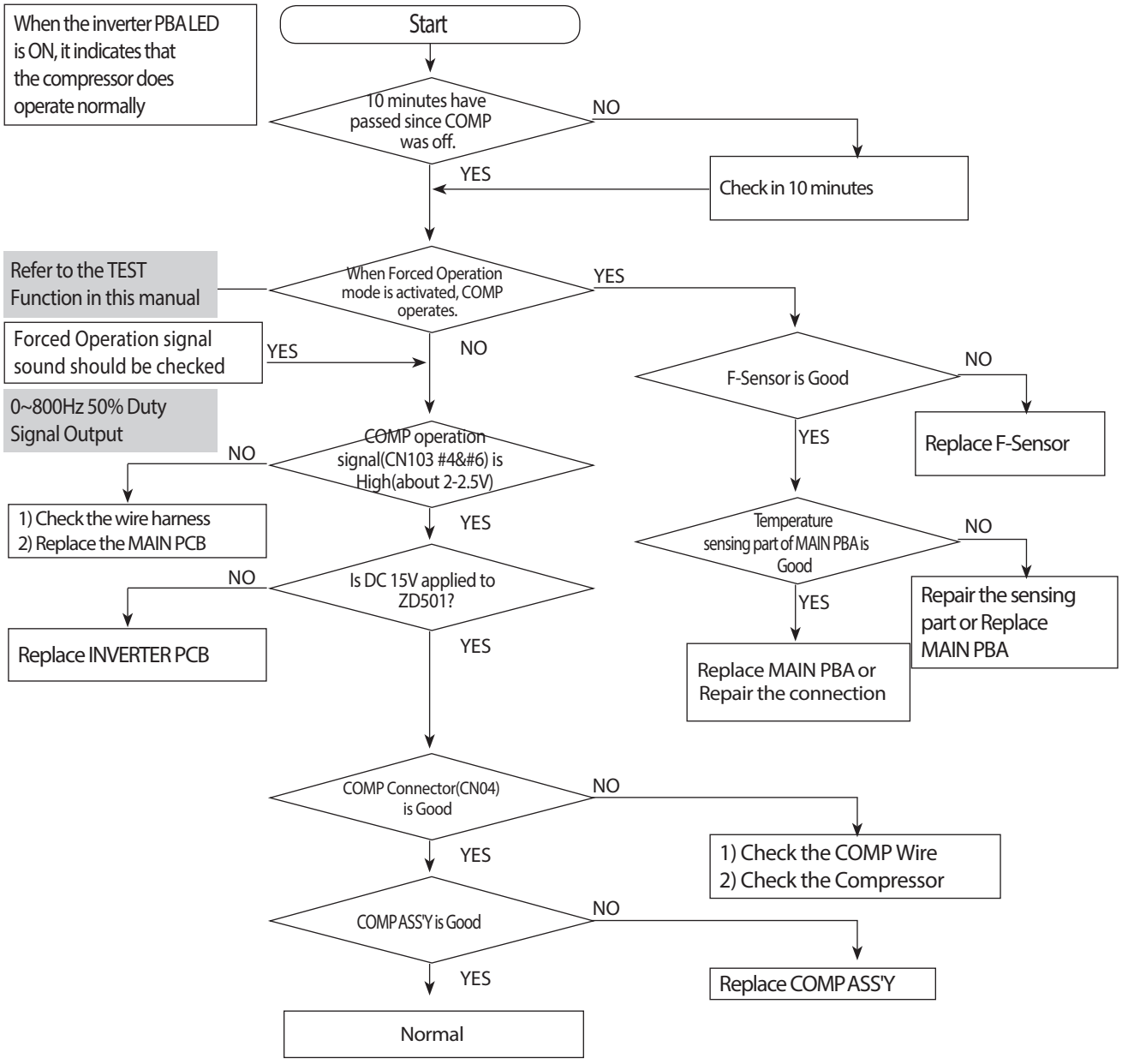
4-11) When Compressor does not run (Inverter COMP.)



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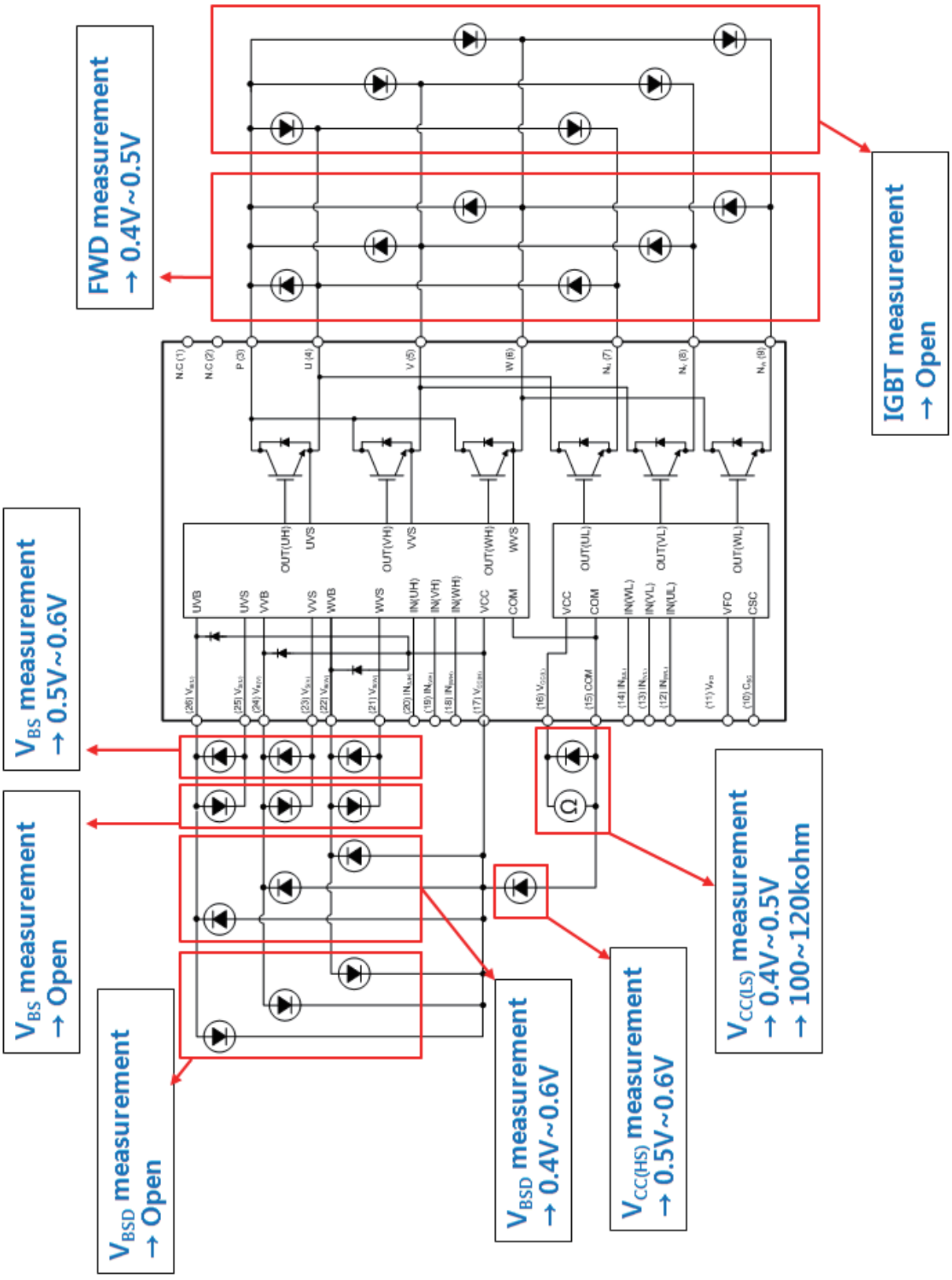
4. TROUBLESHOOTING

Diode Voltage of IPM



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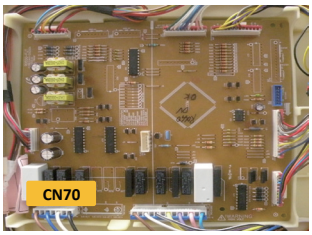
4-12) Unable to Defrost



F-DEF-HEATER:Read resistance between CN102 #1 and CN70 #7
R-DEF-HEATER:Read resistance between CN102 #1 and CN70 #3

Defrost Sensor Voltage is lower than 3.1V

Refer to 4-1-1) Test mode on this manual.

F-DEF-SENSOR:Read resistance between CN30 #4 and #7
R-DEF-SENSOR:Read resistance between CN30 #6 and #7

Start

F/R-DEF Sensor is normal (with Self Diagnosis)
- NO → Replace the sensor
- YES ↓

F/R-DEF Heater is normal
- NO → Check Thermistor, Heater and their connectors
- YES ↓

Defrost Sensor Temp is lower than -5°C
- NO → Forced Operation for a certain time
- YES ↓

Forced F/R Defrost

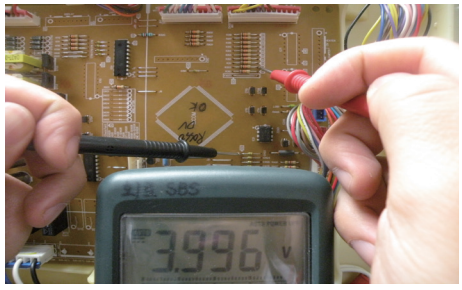
Power is supplied to Defrost Heater
- NO → MAIN PBA connectors are normal
- YES ↓

It goes back to Cooling Operation after heating
- NO → Check all the sensors
- YES → Normal

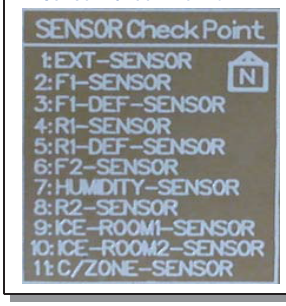
Note: When F/R-DEF Sensor is higher than +10 and +17 , it will stop heating and go back to Cooling Operation.

MAIN PBA connectors are normal
- NO → Repair the connectors
- YES → Check Thermistor, Heater and their contacts. → Repair or Replace defective relays, or PBA Ass'y

☞ Checking method of voltage for F-DEF-Sensor
- Check the voltage of Sensor Check Point #2 on the PBA
- Compare it with the temperature table after measurement. (same method is applied to other sensor)



☞ Sensor Check Point



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4-13) Self-Diagnosis Error (Defective Sensor)

When there is sensor error, display panel show that. When it occurs during the initial power on time, display panel keeps blinking relevant 7-SEG and the refrigerator go into the emergency operation mode.

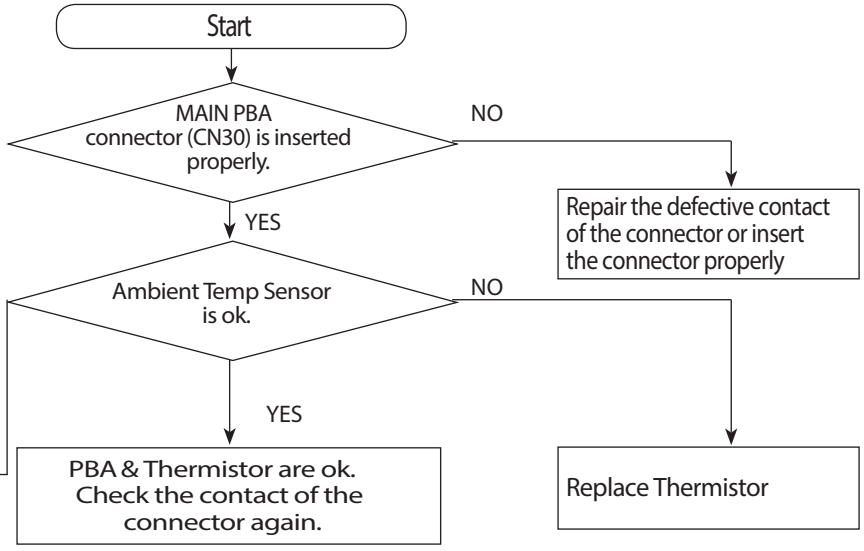
1) When the Ambient Sensor is defective,

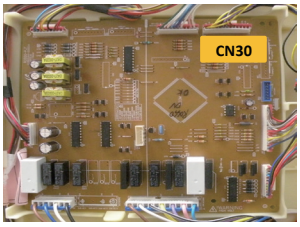
☞ Checking method of resistance for EXT-Sensor

- Compare the temperature table after measurement (same method is applied to other sensors)

Ambient-Sensor : Read the resistance between CN30 #1 and #2

Compare the room temp. with sensed temp. using Temp-Resistance Table.

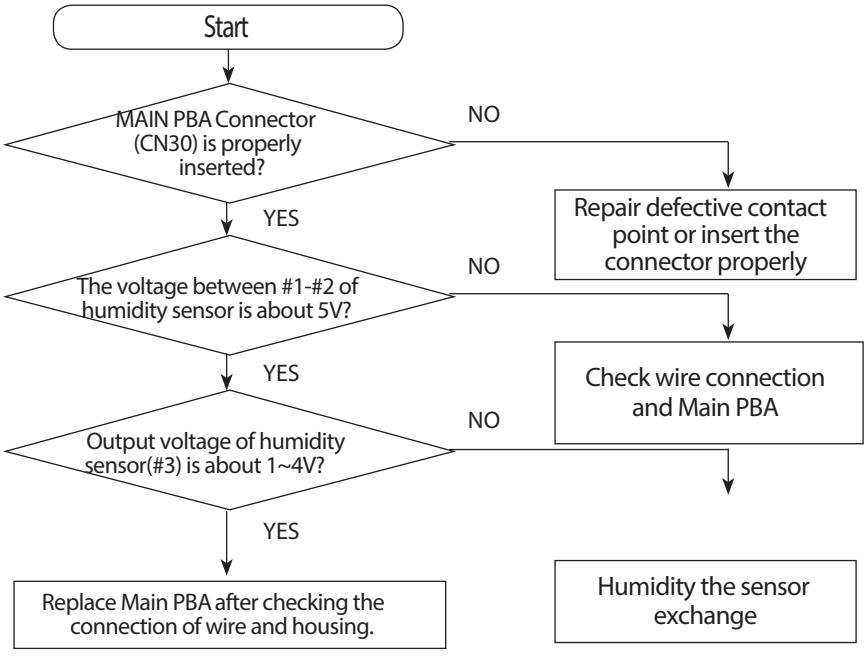




2) When the humidity sensor is defective

☞ Checking the supply voltage (5V) Read the voltage between #1–#2 of humidity sensor.

☞ Checking the output voltage Read the voltage between #1–#3 of humidity sensor. Refer to the humodoty–output voltage table



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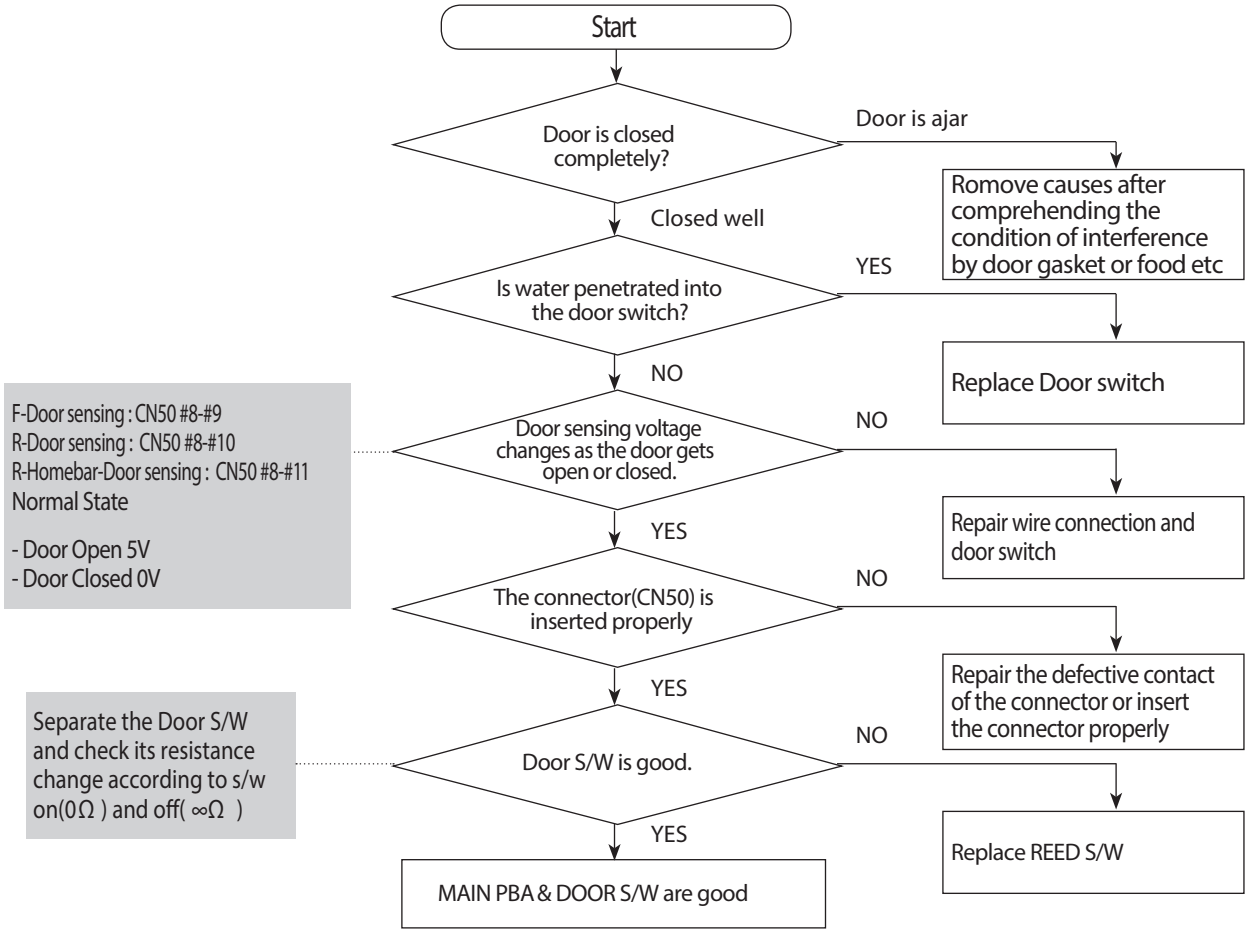
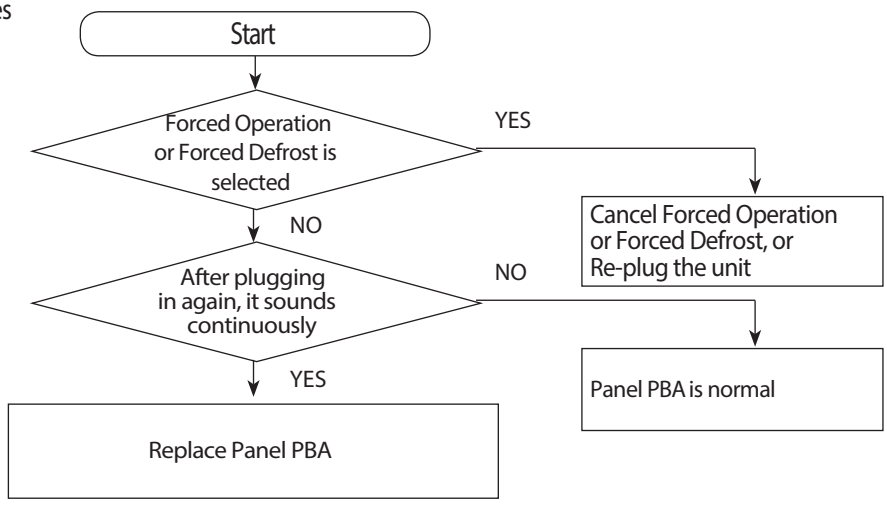
4-14) When Alarm Sound continues (Buzzer Sound)

1) When “DingDong” sound continues.



2) When "Beeping" sound continues



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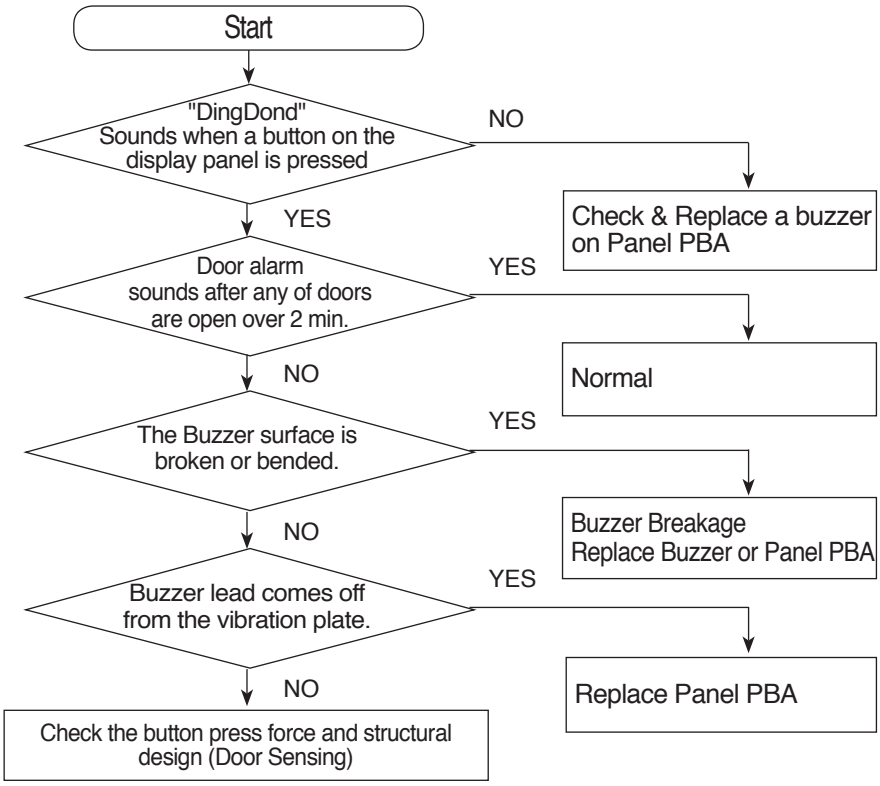
3) If a buzzer does not sound

This model has a buzzer on the Panel PBA. If the buzzer does not sounds when button is pressed, Forced Operation, door open and disconnection with Main PBA, check out defective soldering on PBA or buzzer damage. (It is recommended replacing Panel PBA if components are damaged)
※ It could be unable to hear in case there is heavy noise or built-in environment.



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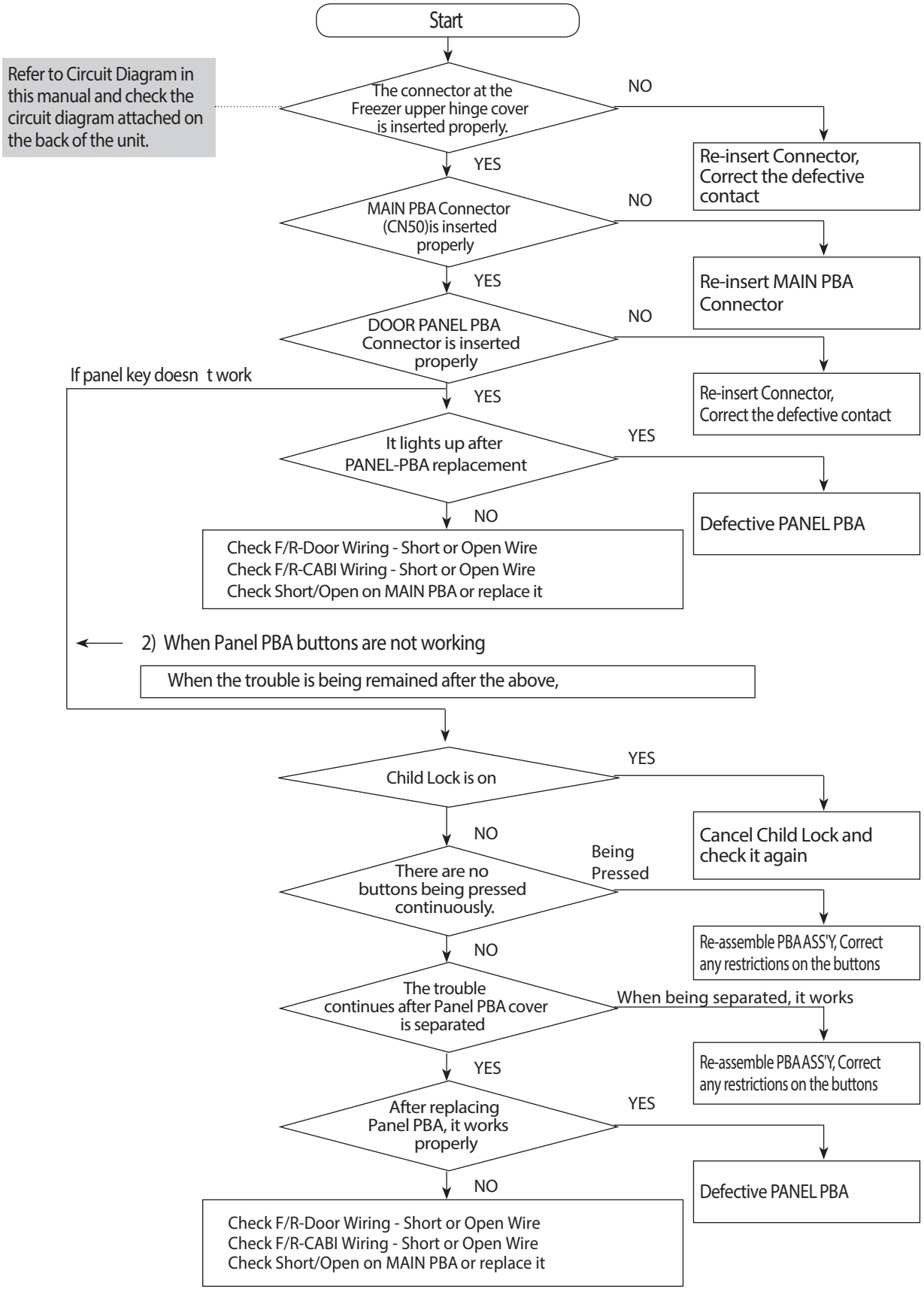
4-15) When PANEL PBA operates abnormally

1) When PANEL PBA does not light up or partially does



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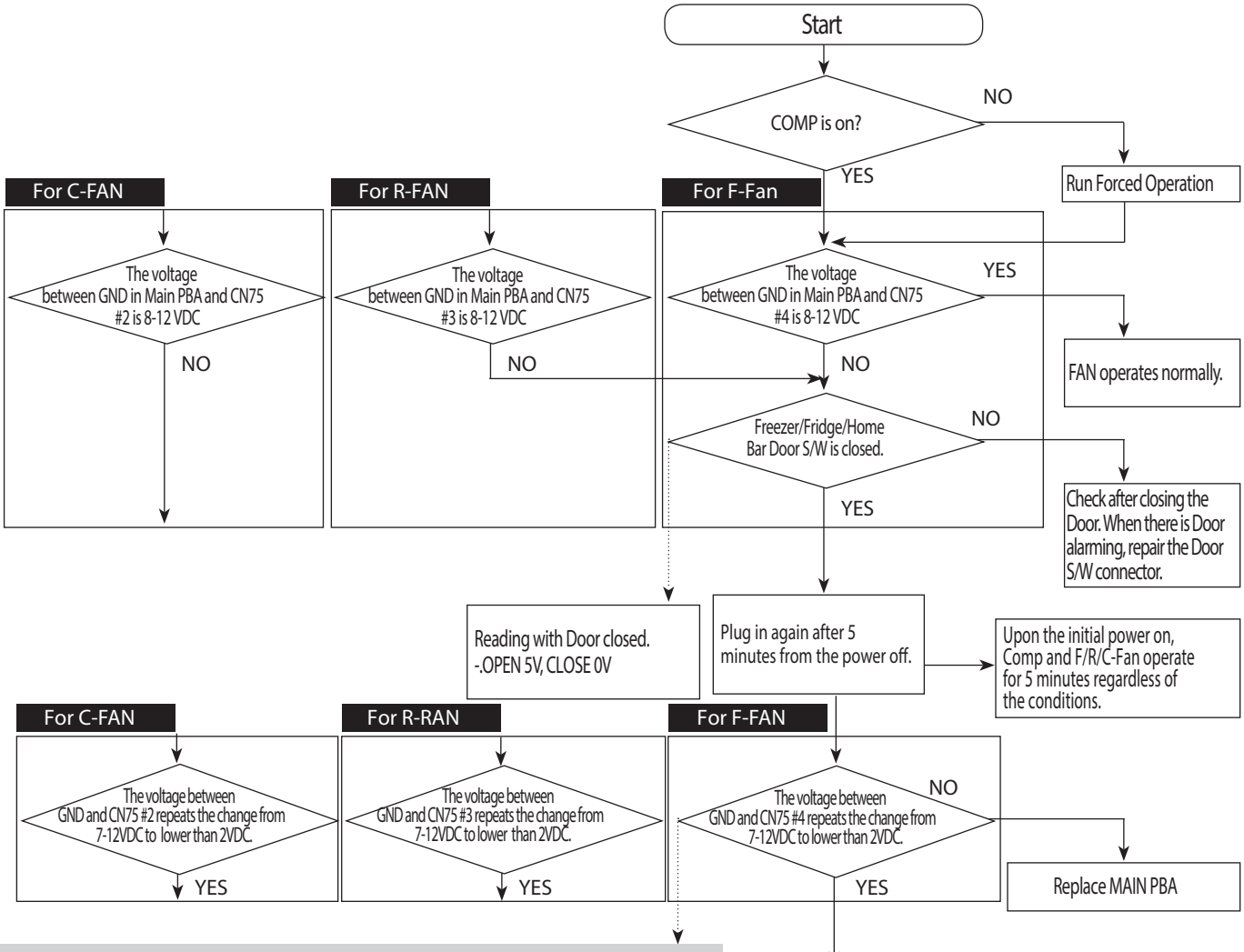
4-16) When Fan does not operate

- This model has BLDC FAN motor. BLDC motor is driven by DC7~12V
- F-Fan motor usually runs together with the Compressor except the Cool Select Zone function is activated. Once the door is open and closed at high ambient temperature, F-Fan motor put off its operation for one minute. Therefore, you are advised not to take it as an error.
- When fridge door is open, the F-Fan motor stops together with R-Fan motor.

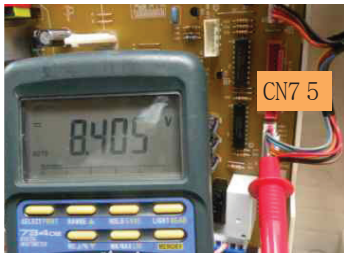


Note

Pulse signal(FG) generated from the Fan motor rotation is transmitted through CN75 #6(F), #7(R), #8(C) Micom senses these signal.
If Micom senses no signal, Micom make Fan Motor stop for 10 sec and try to operate it again. Micom keeps doing the same procedure 4 times until Micom receive the signal.
If it still fails, MICOM stop trying for 10 minutes.
This procedure prevents the motor from overload when foreign substances such as ice built up around the motor restrict motor rotation.

Possible Causes
1. Defective FAN-MOTOR
2. Contact problem at the terminal
3. FG signal error
(Refer to Fan-Motor circuit in this manual)

☞ Checking method of C-Fan motor voltage
- Read the voltage between MAIN PBA GND and CN75 #2
- If it has 8~12 voltage, It's normal.
(same method is applied to other Fan motor.)



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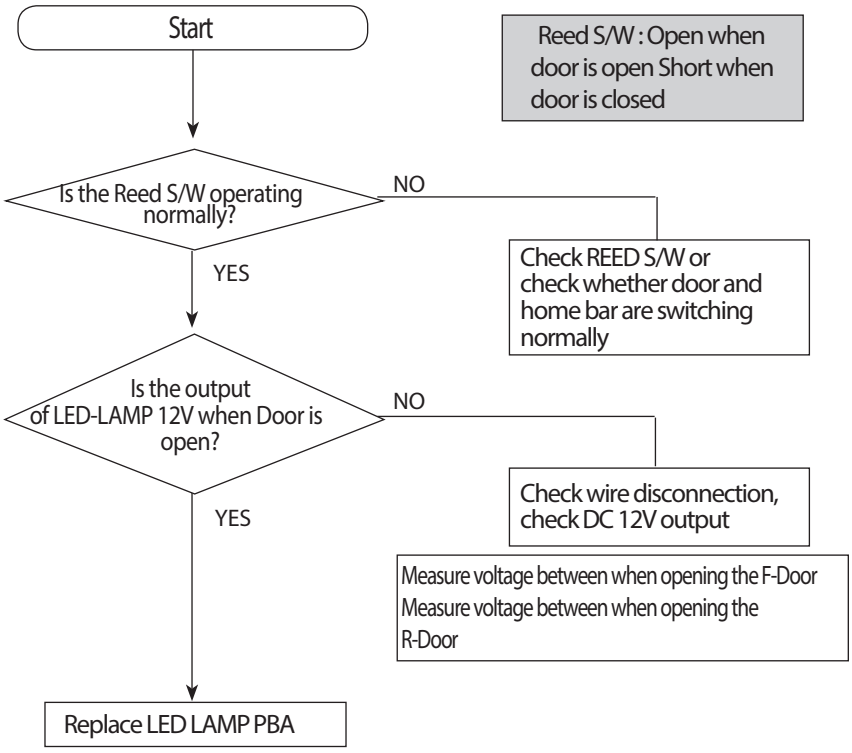
4-17) When the internal lamp of the freezer/fridge does not light up

Reference

1. When the DOOR is open, the DOOR S/W becomes OPEN. Micom senses 5V from Door S/W and recognizes that the Door is open. If 5V has sensed for more than 2 minutes, buzzer will sounds "DingDong" every 1 minute. Therefore, if the DOOR S/W is defective, it can generate the "Ding Dong" sound every 1 minute.
2. ON/OFF control of the internal lamp is linked with the DOOR S/W.



<LED LAMP control method>

	Fridge internal lamp	Freezer internal lamp
Model with LED LAMP applied	On : Fridge door is open or Fridge HomBar is open	On : Freezer door is open or Freezer HomBar is open
	IC76 - LED LAMP	IC77 - LED LAMP

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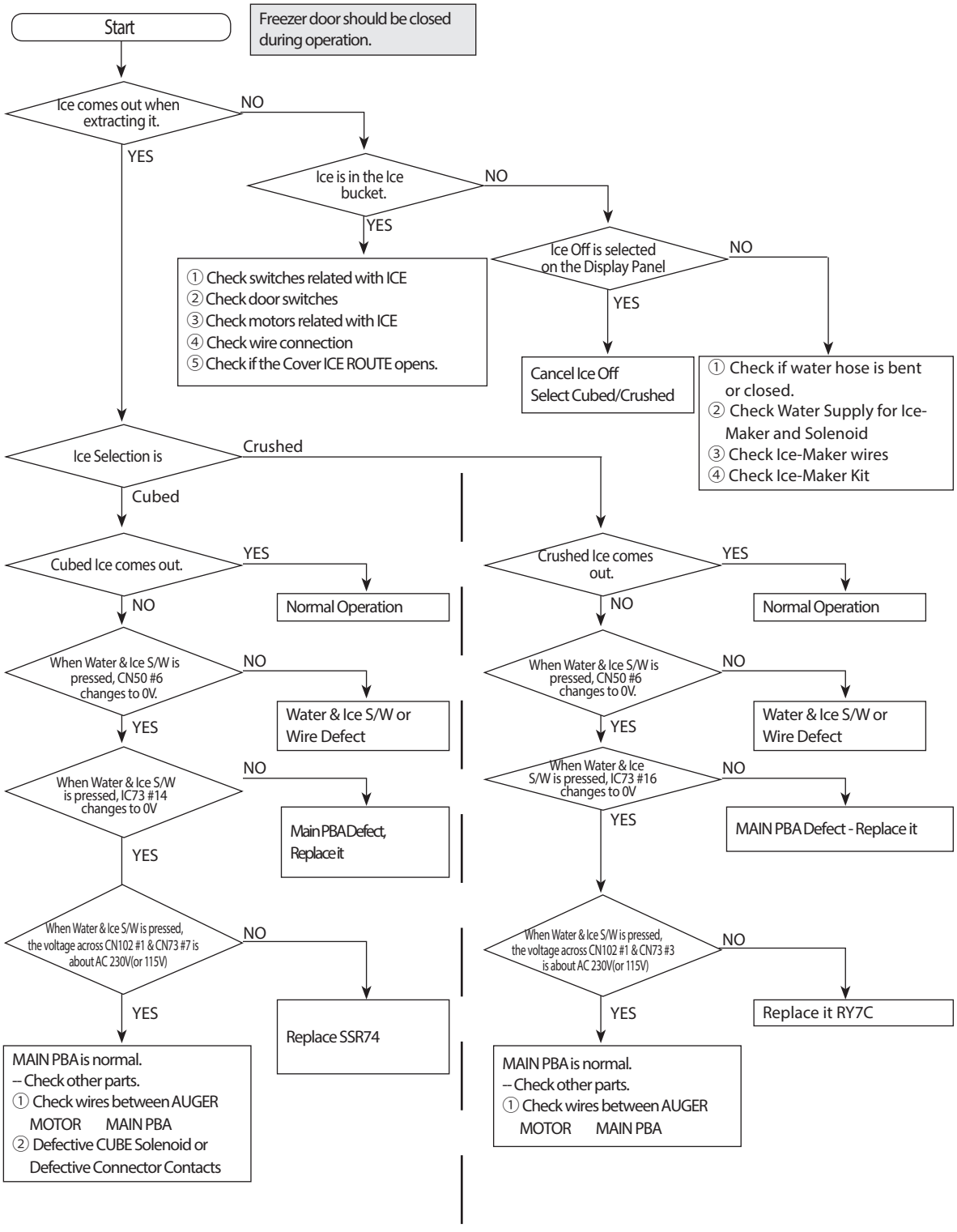
4-18) When Crush (Crushed Ice) & Cube (Cubed Ice) does not operate well

Only for Dispenser models



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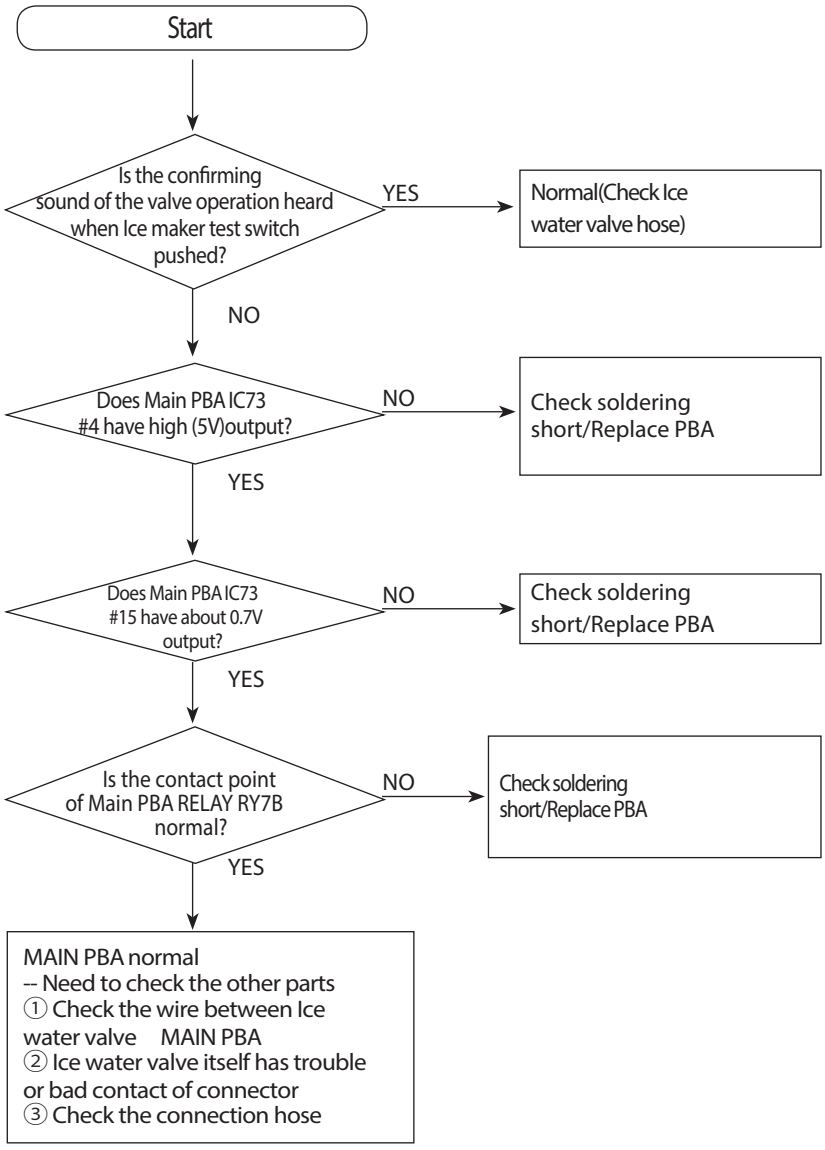
4-19) If ICE Water is not supplied



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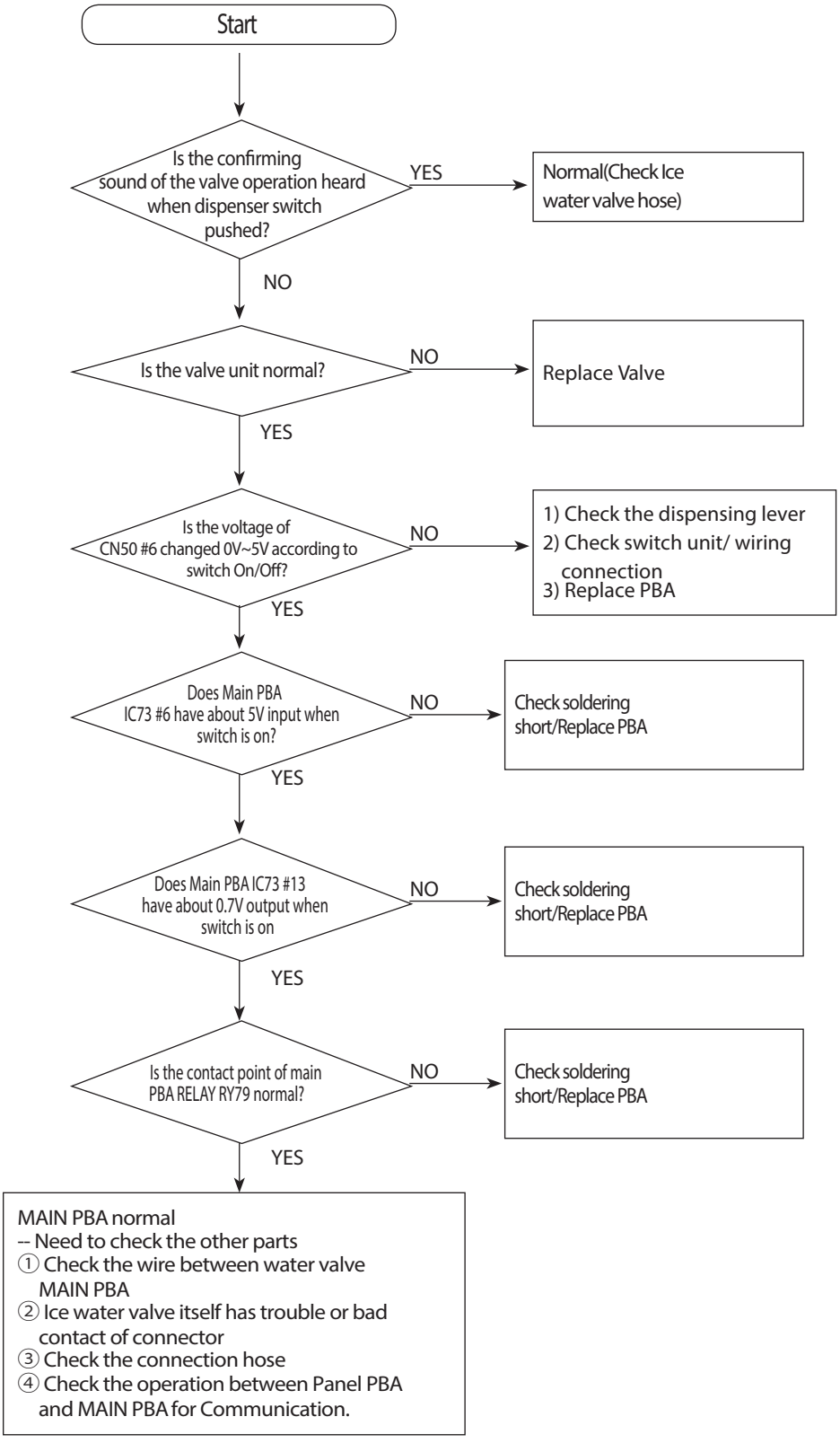
4-20) If Water is not supplied



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4-21) If Ice Route Motor is not working normally

Caution
1. When replacing the Ice Route Motor, pull out the plug to avoid an electric shock.
2. Be careful! When disassemble the Ice Route Motor, spring can jumped out and may cause personal injury.
3. Motor will rotate continuously when the Motor Switch is not sensed.

Checking Mehod of Cover Ice Route Motor
Resistance (Make sure to work after Power Off)
The Resistance is variable according to the input voltage.

Start

Does GEARED MOTOR work properly?
- NO → Replace the MOTOR
- YES ↓

Is Cubed or Crushed Ice mode selected on the Display PANEL?
- NO → Select cubed or crushed Ice
- YES ↓

Is the DISPENSER switch selected?
- NO → Select the DISPENSER switch
- YES ↓

Does the wiring at the both side of motor connected properly?
- NO → Check the WIRE
- YES ↓

Is the AC input voltage applied to the both ends of the motor?
- NO → Check the MOTOR/Check any interference on MOTOR rotation
- NO ↓

① Check the voltage between CN72 #1 & CN102 #1 is applied .
② Check the SSR75 SHORT/OPEN of Ice Route Motor control circuit in the MAIN PBA.
③ Check any SHORT/OPEN of wiring connections between PBA CASE and MAIN PBA.

NOTE. <Make sure that the plug is tuned off before you work, Check the Resistance value>

When the MOTOR rotates. ↑

Is the sensing SWITCH connection normal?
- NO → Check/Repair the Housing connector
- YES ↓

Is the switch pressed area normal when motor rotates?
- NO → Check/Repair the Motor Rotation pressing area
- YES ↓

Are the voltage of CN90 #1 & #2 normal?
- NO → Normal
- NO ↓

① Main PBA - Check the wire OPEN/SHORT between the Ice Route Motor Rotation sensin switches.
② Check the Short of Ice Route Motor Control Circuit SSR75 in the MAIN PBA.
③ Replace the MAIN PBA or the Dispenser Cover Motor.

Operating Condition of Dispenser Open/Close
CN90 - Switch 1,2 Operating

	Close	Open
Ice Route Switch 1 CN30 #12	0V	0V
Ice Route Switch 2 CN30 #13	0V	5V

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4-22) Diagnostic method according to the trouble symptom(Flow Chart)

DATA1. Temperature table
Resistance value and MICOM port voltage of sensor according to the temperature SENSOR CHIP : based on PX41C

˚C	˚F	Voltage	Resistance	˚C	˚F	Voltage	Resistance	˚C	˚F	Voltage	Resistance
-50	-58	4.694	153319	-5	23	3.107	16419	40	104	1.153	2997
-49	-56.2	4.677	144794	-4	24.8	3.057	15731	41	105.8	1.124	2899
-48	-54.4	4.659	136798	-3	26.6	3.006	15076	42	107.6	1.095	2805
-47	-52.6	4.641	129294	-2	28.4	2.955	14452	43	109.4	1.068	2714
-46	-50.8	4.622	122248	-1	30.2	2.904	13857	44	111.2	1.040	2627
-45	-49	4.602	115631	0	32	2.853	13290	45	113	1.014	2543
-44	-47.2	4.581	109413	1	33.8	2.802	12749	46	114.8	0.988	2462
-43	-45.4	4.560	103569	2	35.6	2.751	12233	47	116.6	0.963	2384
-42	-43.6	4.537	98073	3	37.4	2.700	11741	48	118.4	0.938	2309
-41	-41.8	4.514	92903	4	39.2	2.649	11271	49	120.2	0.914	2237
-40	-40	4.490	88037	5	41	2.599	10823	50	122	0.891	2167
-39	-38.2	4.465	83456	6	42.8	2.548	10395	51	123.8	0.868	2100
-38	-36.4	4.439	79142	7	44.6	2.498	9986	52	125.6	0.846	2036
-37	-34.6	4.412	75077	8	46.4	2.449	9596	53	127.4	0.824	1973
-36	-32.8	4.385	71246	9	48.2	2.399	9223	54	129.2	0.803	1913
-35	-31	4.356	67634	10	50	2.350	8867	55	131	0.783	1855
-34	-29.2	4.326	64227	11	51.8	2.301	8526	56	132.8	0.762	1799
-33	-27.4	4.296	61012	12	53.6	2.253	8200	57	134.6	0.743	1745
-32	-25.6	4.264	57977	13	55.4	2.205	7888	58	136.4	0.724	1693
-31	-23.8	4.232	55112	14	57.2	2.158	7590	59	138.2	0.706	1642
-30	-22	4.199	52406	15	59	2.111	7305	60	140	0.688	1594
-29	-20.2	4.165	49848	16	60.8	2.064	7032	61	141.8	0.670	1547
-28	-18.4	4.129	47431	17	62.6	2.019	6771	62	143.6	0.653	1502
-27	-16.6	4.093	45146	18	64.4	1.974	6521	63	145.4	0.636	1458
-26	-14.8	4.056	42984	19	66.2	1.929	6281	64	147.2	0.620	1416
-25	-13	4.018	40938	20	68	1.885	6052	65	149	0.604	1375
-24	-11.2	3.980	39002	21	69.8	1.842	5832	66	150.8	0.589	1335
-23	-9.4	3.940	37169	22	71.6	1.799	5621	67	152.6	0.574	1297
-22	-7.6	3.899	35433	23	73.4	1.757	5419	68	154.4	0.560	1260
-21	-5.8	3.858	33788	24	75.2	1.716	5225	69	156.2	0.546	1225
-20	-4	3.816	32230	25	77	1.675	5039	70	158	0.532	1190
-19	-2.2	3.773	30752	26	78.8	1.636	4861	71	159.8	0.519	1157
-18	-0.4	3.729	29350	27	80.6	1.596	4690	72	161.6	0.506	1125
-17	1.4	3.685	28021	28	82.4	1.558	4526	73	163.4	0.493	1093
-16	3.2	3.640	26760	29	84.2	1.520	4369	74	165.2	0.481	1063
-15	5	3.594	25562	30	86	1.483	4218	75	167	0.469	1034
-14	6.8	3.548	24425	31	87.8	1.447	4072	76	168.8	0.457	1006
-13	8.6	3.501	23345	32	89.6	1.412	3933	77	170.6	0.446	978
-12	10.4	3.453	22320	33	91.4	1.377	3799	78	172.4	0.435	952
-11	12.2	3.405	21345	34	93.2	1.343	3670	79	174.2	0.424	926
-10	14	3.356	20418	35	95	1.309	3547	80	176	0.414	902
-9	15.8	3.307	19537	36	96.8	1.277	3428	81	177.8	0.404	877
-8	17.6	3.258	18698	37	98.6	1.253	3344	82	179.6	0.394	854
-7	19.4	3.208	17901	38	100.4	1.213	3204	83	181.4	0.384	832
-6	21.2	3.158	17142	39	102.2	1.183	3098	84	183.2	0.375	810

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4-23) LED blinking frequency depending on protecting functions

If Failu re Co ndition is detected during comp ress or is operating, immediately s top Co mpress or operating and stand
by 5 minutes. Dur ing this 5 minutes. RP M com mand signal is not av ailable. it means It means, even if available RP M com mand s ignal is applied to the comp res sor, it does not work and keep standing by.

Blinking time is 1 second and dwell time is 2 seconds.

LED Blinking Frequency	Protecting Functions	Remarks
	Normal Operation	N/A
	Starting Failure	1. Check the COMP terminals short(U,V,W) 2. Check IPM Pins short of Inverter PBA 3. Check IPM operating Voltage(under DC 13.5V) 4. Other cases, check the COMP, cycle, etc.
	SPM Fault	
	Abnormal Current Detection	1. Check COMP wire connections(U,V,W) 2. Check PCB Bottom side soldering state 3. Other cases, check the COMP, cycle, etc.
	Motor Locked / Over RPM	1. Check PCB Bottom side soldering state. 2. Check Input voltage oscillation 3. Other cases, check the COMP, cycle, etc.
	Under Voltage	1. Check input voltage under AC 53V(Input Power AC110~127V) or AC 106V(Input Power AC 220 ~ 240V) 2. Check PCB Bottom side soldering state.
	Over Voltage	1. Check input voltage over AC 155V(Input Power AC110~127V) or AC 310V(Input Power AC 220 ~ 240V) 2. Check PCB Bottom side soldering state.

When the fridge / freezer compartment not cool / not freeze (Not a defect)

1. Advise customers to adjust its temperature level to one or two step higher. For example, when the ambient temperature is low such as in winter (especially, when you use it in the morning with the door not being opened or closed during the night), the compartment temperature could get increased by 1~2 ℃. So, advise customers to shift its temperature level and explain to them that it does not affect its power consumption that much when its temperature setting is adjusted to one or two step lower.
2. Check if the compressor is working properly.
3. The doors has to be well closed .
4. Check the sensor doesn't have any obstruction (Refer to pg.81)
5. Check the temperature settings .
6. Check the Cooling Off function (Refer to pg.58)

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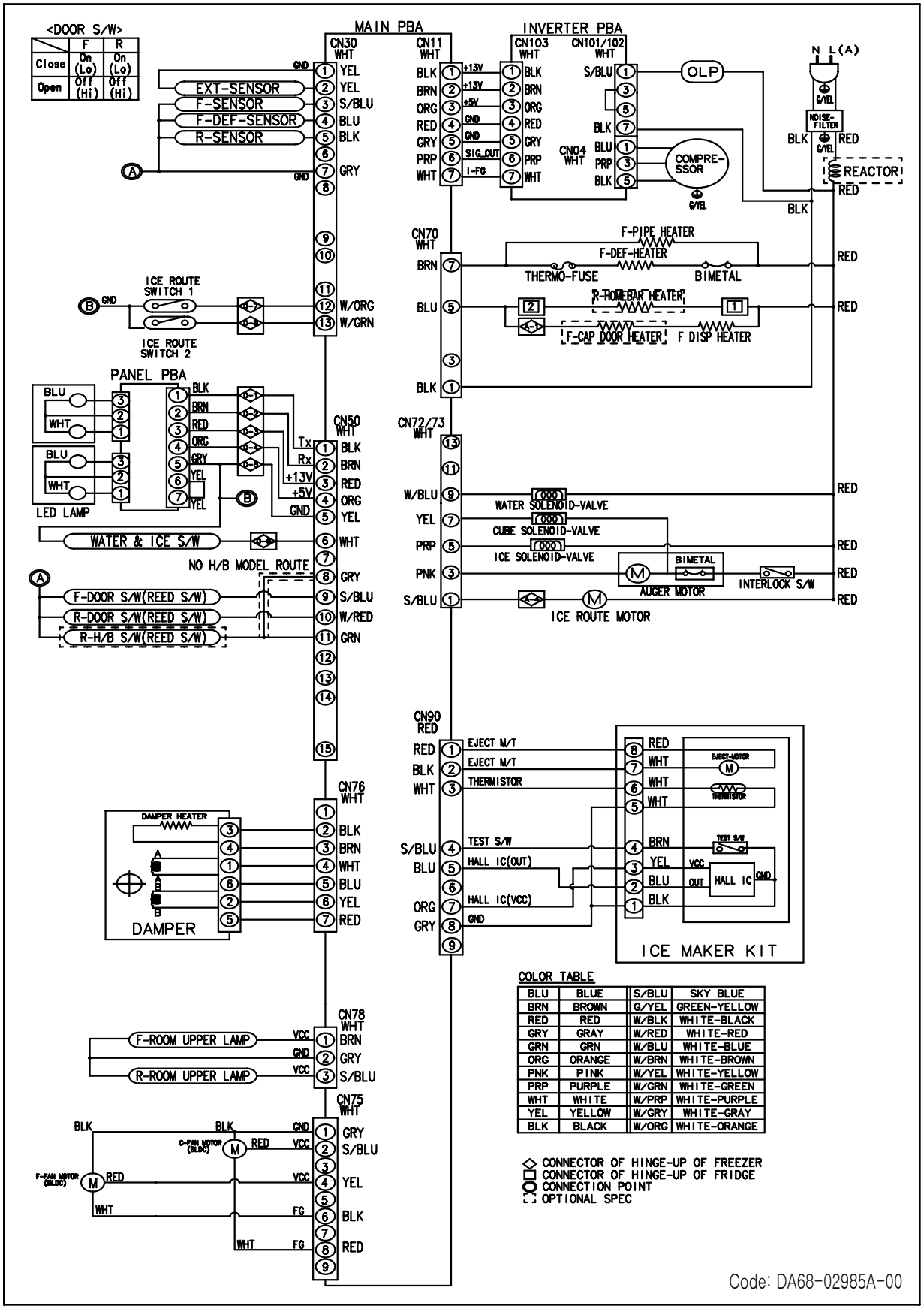
5 . WIRING DIAGRAM

RS5000HA-1EVAP



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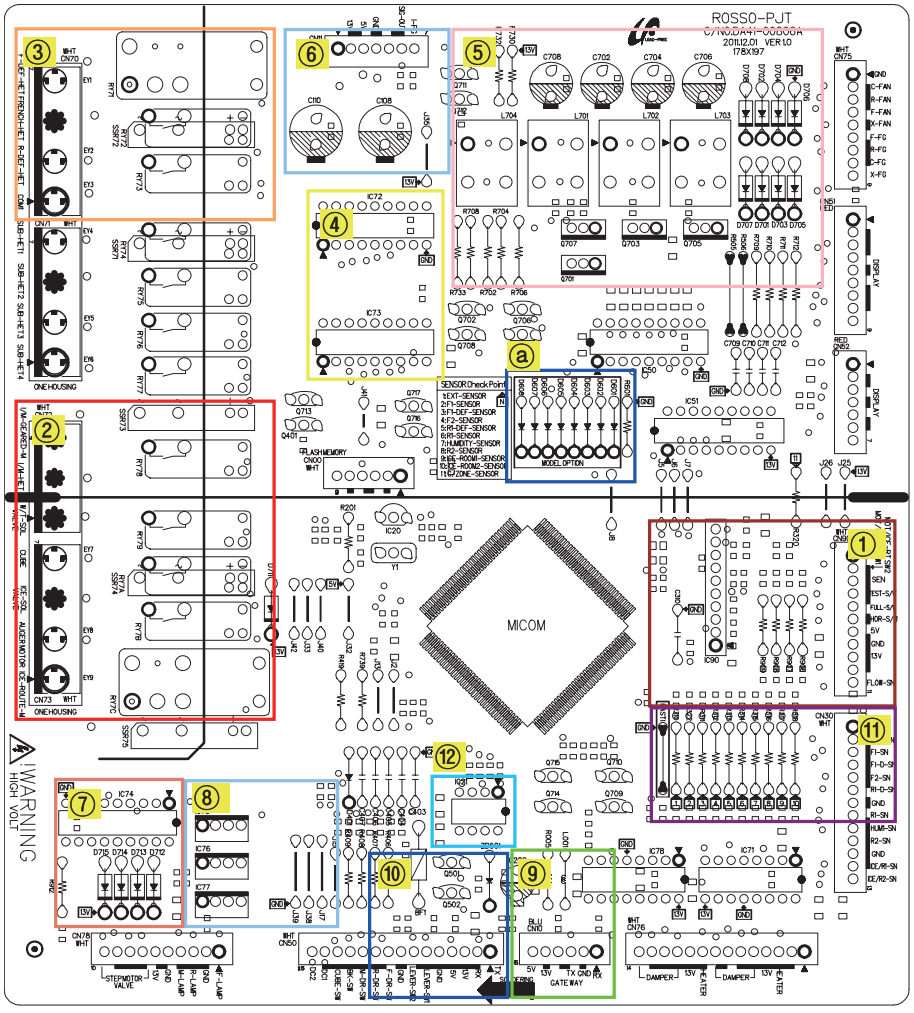
6. PCB DIAGRAM

6–1) PART ARRANGEMENT (Main PBA)



1. SMPS Circuit : Not used.
2. Ice Maker Circuit : Receiving the data of sensor, Hall S/W, Ice Route Micro S/W
3. Ice Maker Control Circuit : Controlling AC Load like motor, solenoid, heater related to ice making
4. Heater Control : Relays for F/R-def-heater, R-H/B-heater, Pipe-heater, Dispenser-heater F/R-cap-heater
5. Driver IC : Using MICOM signal to control relays.
6. BLDC Fan Control circuit : Supplying the power to the fan motor using PWM
7. Cool Select Zone control circuit : Controlling Cool Select Zone PBA.
8. Inverter Communication circuit : Sending operating RPM signal & receiving error feedback.
9. Step Valve control circuit : using motor driver IC to control step valve motor
10. Lamp control circuit : Controlling F&R room lamp
11. PLC circuit : Not applied
12. Display communication circuit (UART) and Dispenser lever & H/B switch signal
13. Cool Select Zone control circuit
14. Sensor & Door Switch circuit : sensing several sensors & door switches signal.
15. EEPROM : memory for data saving.

A. Diode option setting part

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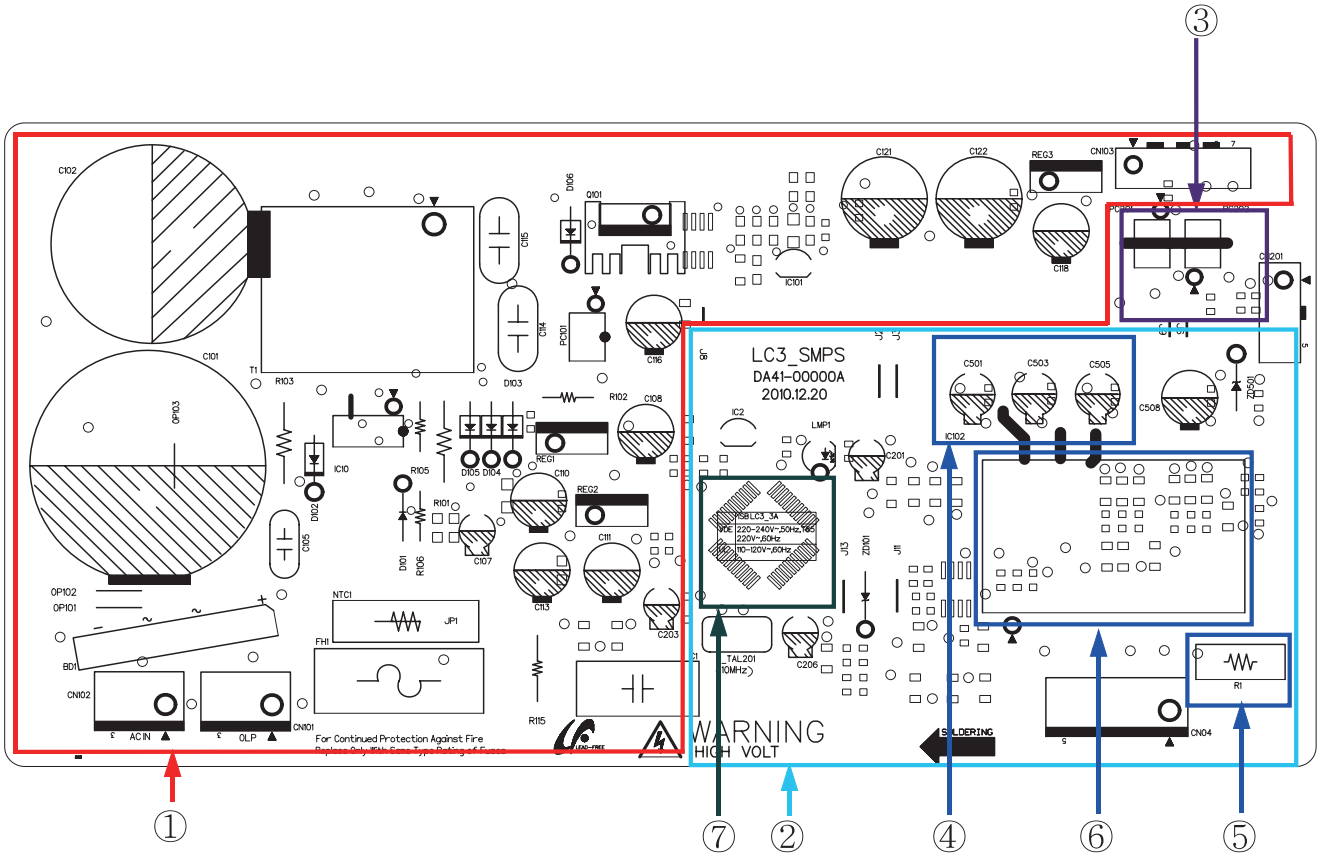
6. PCB DIAGRAM

6-2) Connector Layout & Descriptions of Inverter Controller Board



1. PCB Power Supply : From the SMPS circuit, it supplies 15V and 5V for the Main PBA control and supplies15V and 5V to the Inverter circuit for the Compressor control.
2. Inverter Control Circuit : Fridge Compressor Control Circuit.
3. COMP Driving / Feedback CircuitIt receives the COMP operation signals from the Main PBA and feedbacks the inverter errors to the Main PBA.
4. BOOTSTRAP Charger : It is an independent power circuit for the driving of the IMP High-Phase IGBT.
5. Current Pickup Circuit : It pickups the currents taken by the Shunt resistance and does the PWM DUTY control.
6. IPM (FNE41060)
7. Micom (MN103SFC2D)

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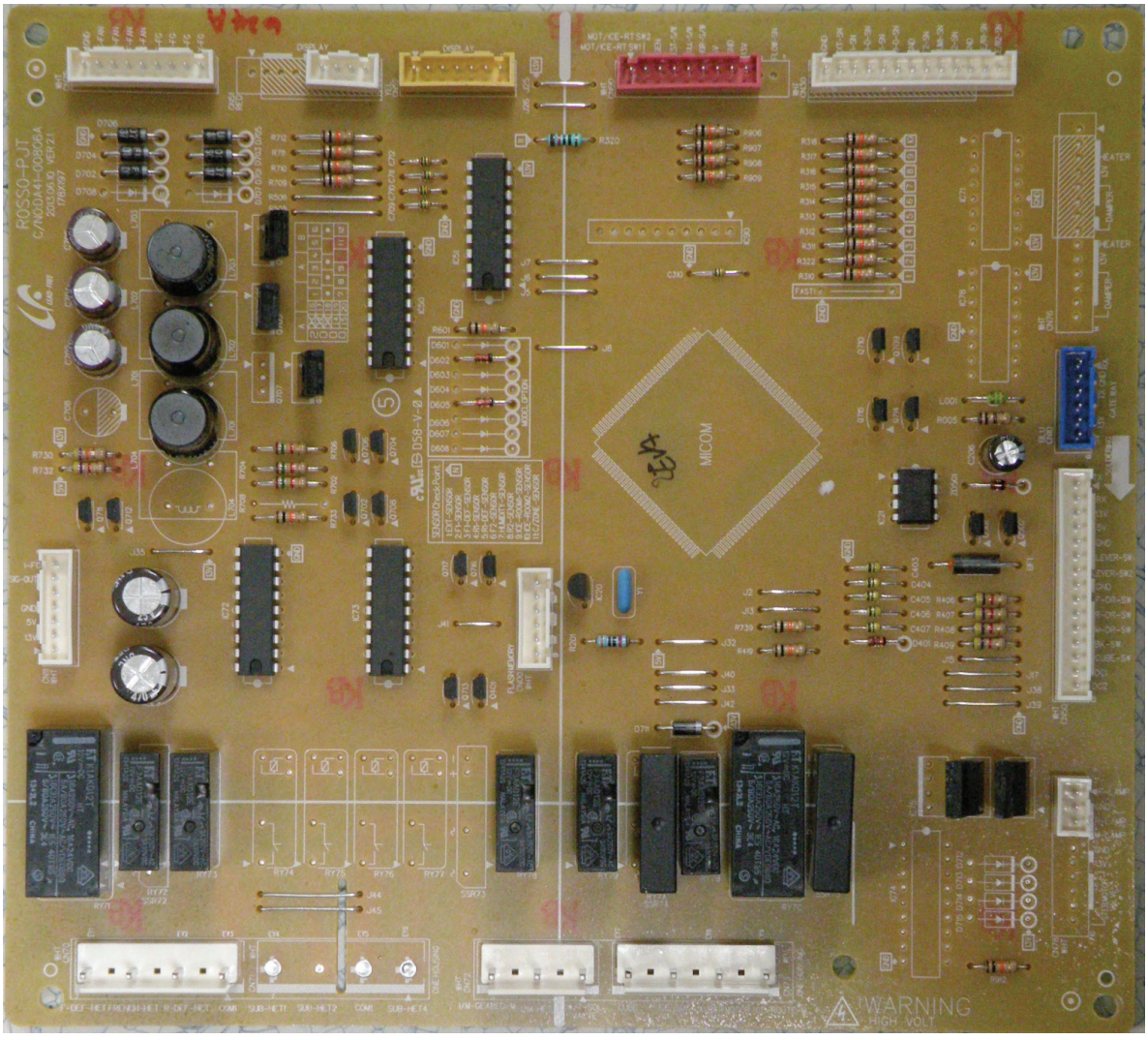
6. PCB DIAGRAM

6-3) CONNECTOR ARRANGEMENT (Main Board)



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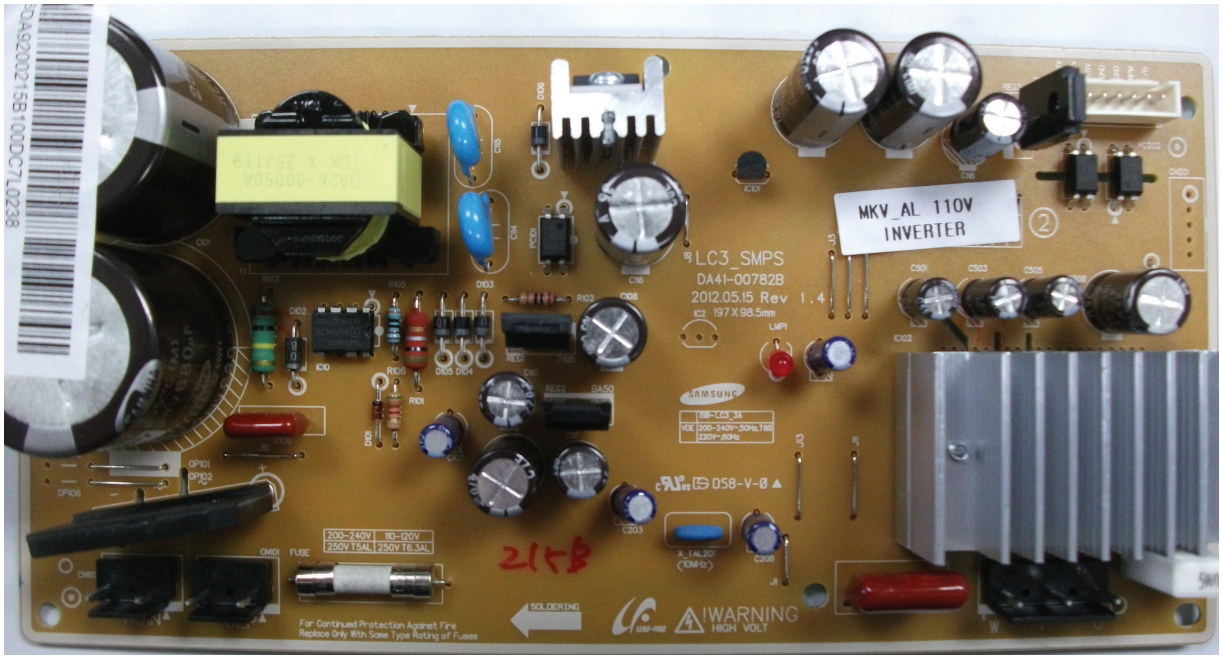
6. PCB DIAGRAM

6-4) Connector Layout & Description (Inverter comp control Board)

Used for Inverter Model



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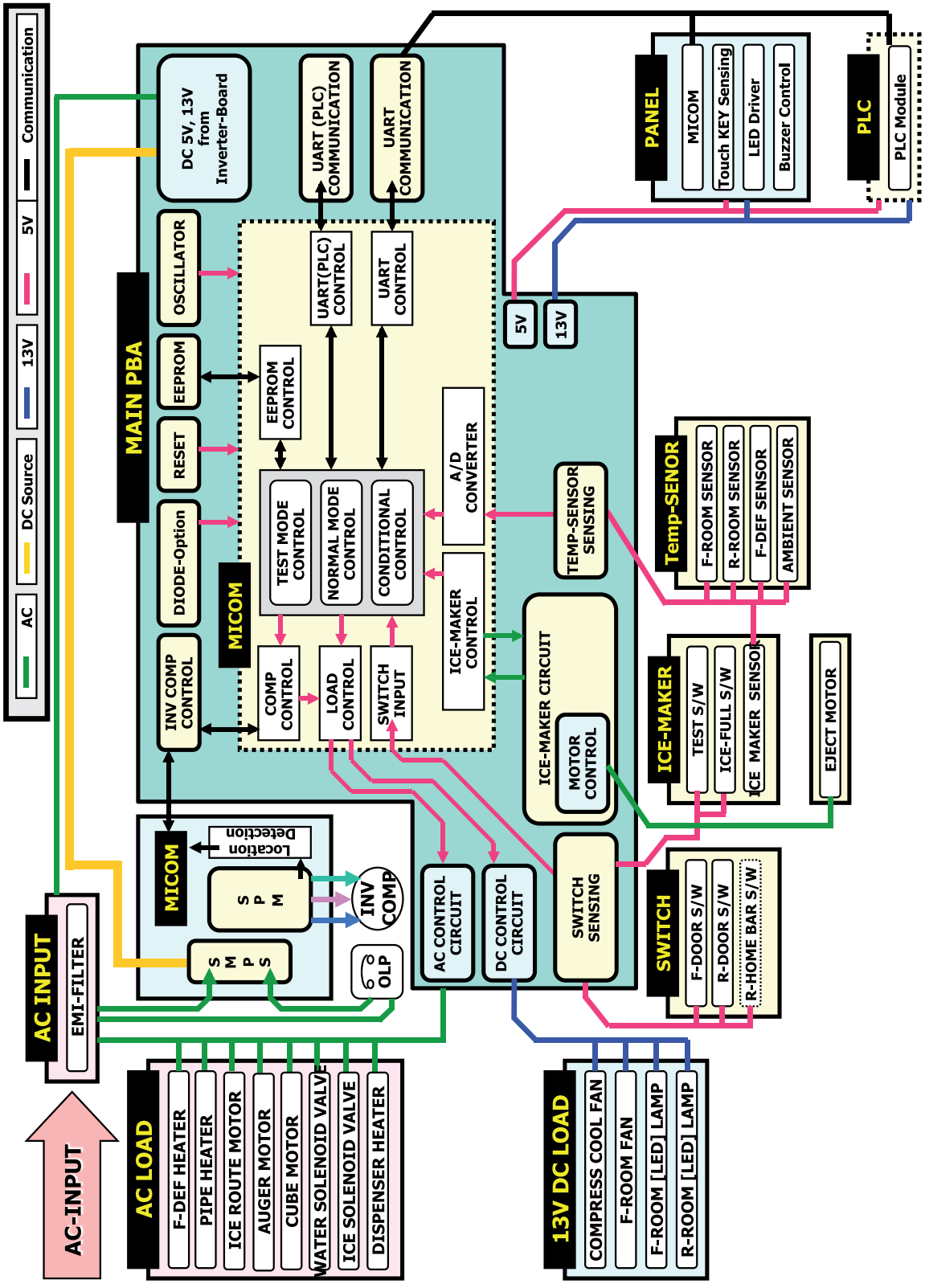
7. SCHEMATIC DIAGRAM

7-1) Block Diagram (Main PBA)



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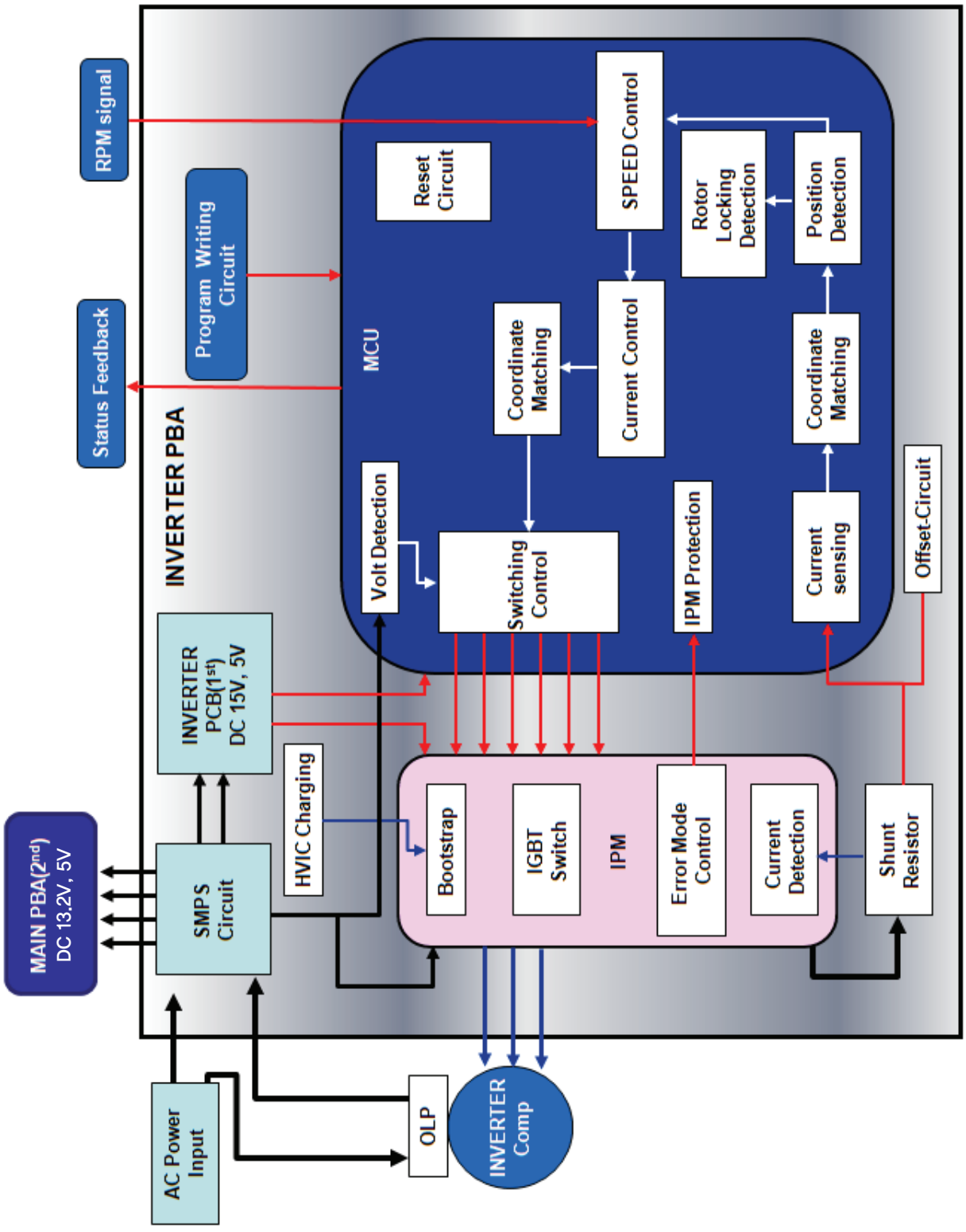
7-2) Block Diagram (INVERTER PBA)



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8. REFERENCE INFORMATION

8-1) MODEL NAME(NOMENCLATURE) & Q&A 81
8-1-1) MODEL NAME(NOMENCLATURE) 82
8-1-2) Q&A 83

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8. REFERENCE INFORMATION

8-1) MODEL NAME(NOMENCLATURE) & Q&A

8-1-1) MODEL NAME(NOMENCLATURE)

	Type	Capa	Year	Series	Feature 1 (Exterior)			Feature 2 (Interior)			Feature 3 (Energy)	Color
Code	R S	2 5	H	5	0			0			0	S R
Feature					HomeBar	Dispenser	Display	Semi CSZ	Fresh Drawer	Ice Maker	Energy	S L
					0	● (Water & Ice)	Bar	0	X	Normal	0	S P
					1	X	● (Water & Ice)	88Seg	1	X	O	Indoor IM	1	14 year E-Star	B C
					2	O	● (Water & Ice)	88Seg	2	O	X	Indoor IM	2	B	W W
	SBS	Volume (L) 25 cu.ft (AHAM)	2014	Grade								3 4	A A+	SR: Real STS SL: EZ Clean Steel SP: Platinum Inox BC: Black WW: White

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8-1-2) Q&A

Problem	Possible Causes	What To Do
The refrigerator does not work sufficiently or at all	• Disconnected power plug	• Check that the power plug is properly connected.
	• Is the temperature control on the display panel set to the correct temperature?	• Try setting it to a lower temperature.
	• Is the refrigerator in direct sunlight or located near a heat source?	• Move the refrigerator to the proper location.
	• Is the back of the refrigerator too close to the wall?	
The food in the refrigerator is frozen	• Is the temperature control on the display panel set to the correct temperature?	• Try setting it to a warmer temperature.
	• Is the temperature in the room too low?	
	• Did you store the food with a high water content in the coldest part of the refrigerator.	
Unusual noises or sounds are heard		• Check that the floor is levelled and stable.
	• Is the back of the refrigerator too near to the wall?	• Move the refrigerator to the proper location.
	• Was anything dropped behind or under the refrigerator?	• Remove the foreign thing.
	• A "ticking" sound may be heard from inside the refrigerator. This is normal and occurs because various accessories contract or expand.	
The front corners and sides of the cabinet are hot; condensation occurs	• HOT-PIPE is installed in the front corners of refrigerator. That makes refrigerator's temperature low quickly and save the power consumption.	• Normal state
	• Condensation can occur when you leave the door open for a long time.	• Normal state
Ice is not dispensed	• Did you stop the ice making function?	• See the control panel.
	• Is there any ice in the storage unit?	• See the ice container.
	• Is the water pipe connected and the shut-off valve open?	• See the valve.
	• Is the freezer temperature too warm?	• Set the temperature lower.
	• Did you wait for 12 hours after installation of the water supply line before making ice?	
You can hear water bubbling in the refrigerator	• The bubbling comes from the refrigerant circulating in the refrigerator and is normal.	• Normal state
There is a bad smell in the refrigerator	• Wrap strong smelling food so that it is airtight. Throw away any rotten food.	
Frost forms on the wall of the freezer		• Allow sufficient space between stored food for efficient air circulation.
	• Is the air vent blocked?	
	• Is the door closed properly?	
No water is supplied	• Is the water pipe connected and the shut-off valve open?	
	• Is the water supply pipe crushed?	
	• Is the water tank frozen because the refrigerator temperature is too low? Select a warmer setting on the display panel.	

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Problem	Possible Causes	What To Do
Small or hollow cubes	Water filter clogged.	• Replace filter cartridge with new cartridge or with plug.
Slow ice cube freezing	Door left open.	• Check to see if package is holding door open.
	Temperature control not set cold enough.	• See about the controls.
Orange glow in the freezer	Defrost heater is on.	• This is normal.
Cube dispenser does not work(on some models)	Icemaker turned off or water supply turned off.	• Turn on icemaker or water supply.
	Ice cubes are frozen to icemaker feeler arm.	• Remove cubes and move the feeler arm to the ON position.
	Irregular ice clumps in storage container.	• Break up with fingertip pressure and discard remaining clumps. • Freezer may be too warm. Adjust the freezer control to a colder setting, one position at a time, until clumps do not form.
	Dispenser is LOCKED.	• Press and hold the CHILD LOCK for 3 seconds.
Water has poor taste/odor (on some models) Water in first glass is warm (on some models)	Water dispenser has not been used for a long time.	• Dispense water until all water in system is replenished.
	Normal when refrigerator is first installed.	• Wait 24 hours for the refrigerator to completely cool down.
	Water dispenser has not been used for a long time.	• Dispense water until all water in system is replenished.
	Water system has been drained.	• Allow several hours for replenished supply to chill.
Water dispenser does not work(on some models)	Water supply line turned off or not connected.	• See Installing the water line.
	Water filter clogged.	• Replace filter cartridge or remove filter and install plug.
	Air may be trapped in the water system.	• Press the dispenser arm for at least two minutes.
	Dispenser is LOCKED.	• Press and hold the CHILD LOCK pad for 3 seconds.
Water spurting from dispenser (on some models) Water is not dispensed (on some models) but icemaker is working	Newly-installed filter cartridge.	• Run water from the dispenser for 3 minutes (about one and a half gallons).
	Water in reservoir is frozen.	• Call for service.
	Refrigerator control setting is too cold.	• Set to a warmer setting.
	Ice cubes stuck in icemaker. (Green power Lighting on icemaker blinking).	• Turn off the icemaker, remove cubes, and turn the icemaker back on.
Water on kitchen floor or on bottom of freezer	Drain in the bottom of the freezer clogged.	• See Care and cleaning. • Check the lock of filter.
	Cubes jammed in chute.	• Poke ice through with a wooden spoon.
No water or ice cube production	Supply line or shutoff valve is clogged.	• Call a plumber.
	Water filter clogged.	• Replace filter cartridge or remove filter and install plug.
	Dispenser is LOCKED.	• Press and hold the CHILD LOCK pad for 3 seconds.